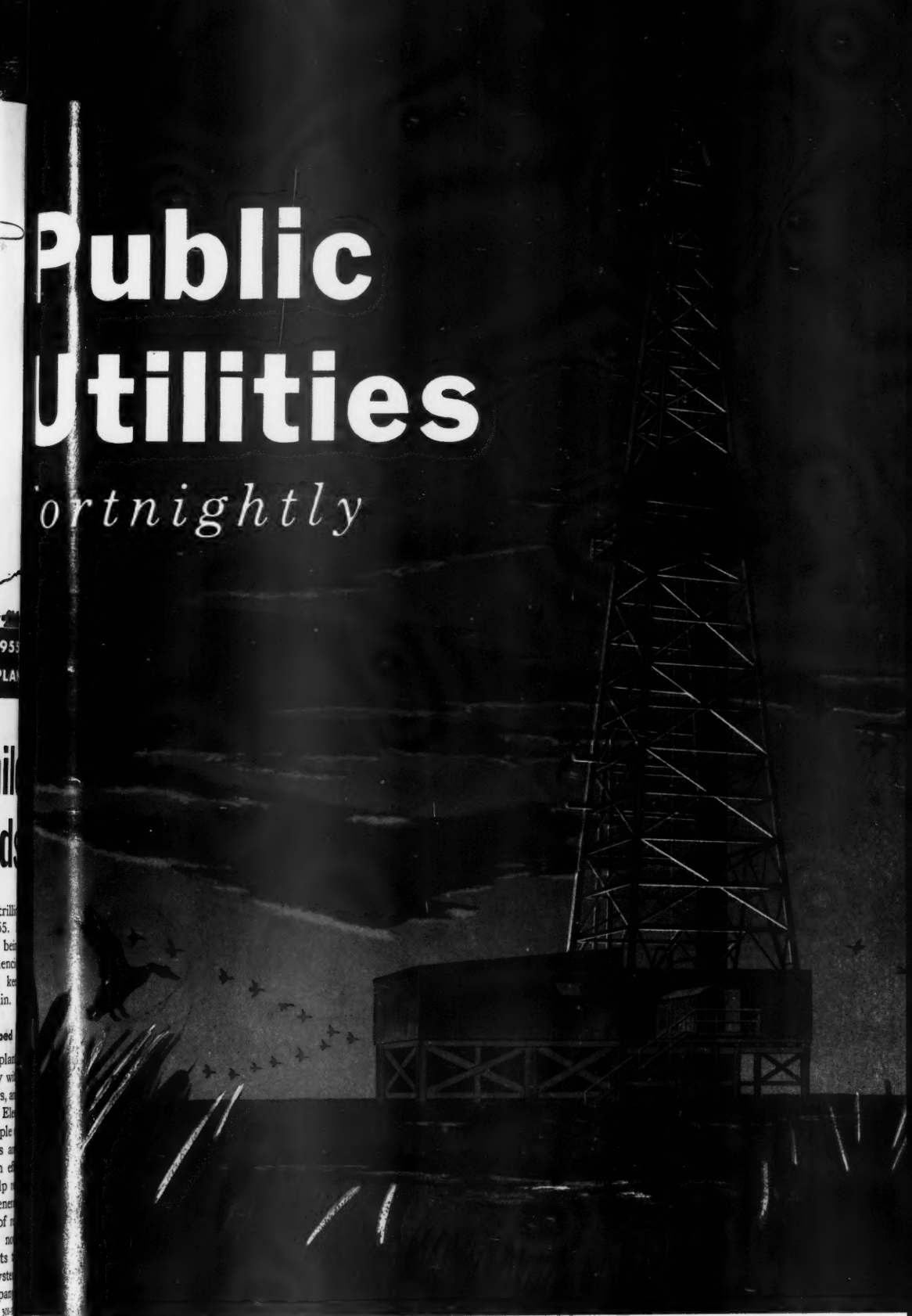
Public Utilities

Fortnightly



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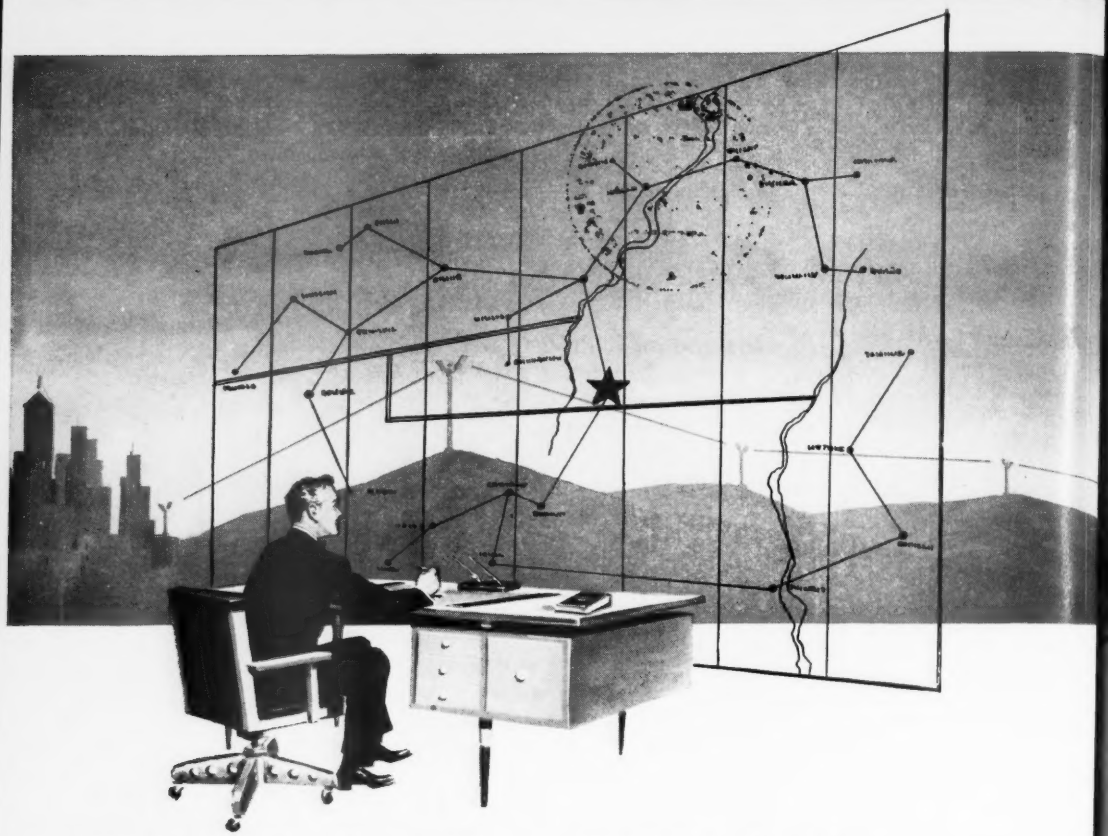
AS INDUSTRY growth and its glowing future

OCTOBER 25, 1956



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Public Utilities FORTNIGHTLY

VOLUME 58 OCTOBER 25, 1956 NUMBER 9

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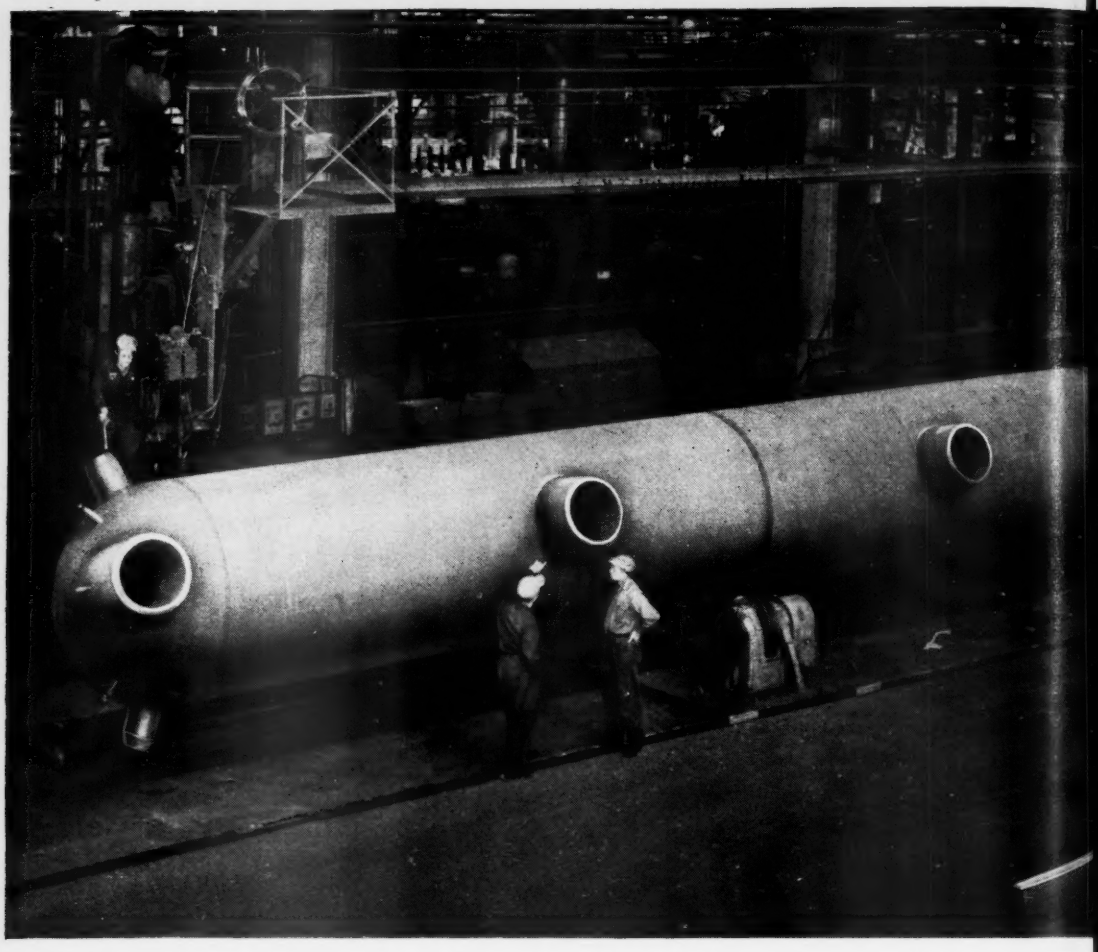

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Two of the world's largest boilers fst

Keeping ahead of the world's greatest city is no easy task—but for many years "largests" and "firsts" have had to be the rule with New York's source of light and energy.

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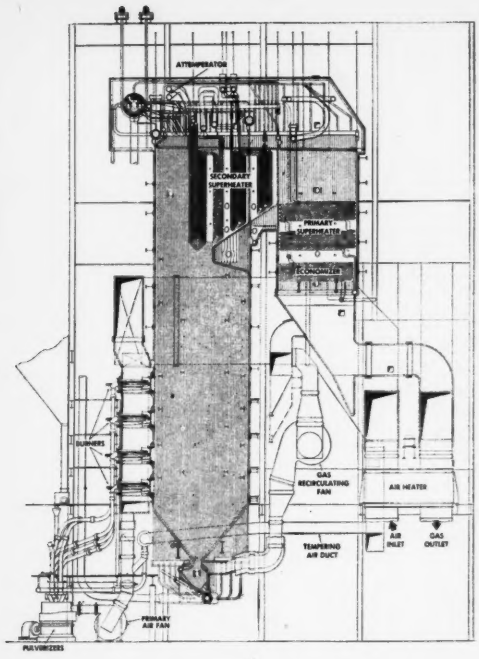
And now, this latest step: two huge B&W Radiant Boilers being built for Con Edison . . . right in with Con Edison's long-standing policy of progsive engineering.

Each B&W Radiant Boiler has a capaci 2,400,000 lb of steam per hr and features pres firing, natural circulation, and separate furnaces a single steam drum. The unit for Astoria is the pressure-fired B&W Boiler to be designed for new modern station of the Con Edison System.

In all but size and design details, Con Edison's boilers are typical of many other B&W units providing dependable, efficient steam generatio central station and industrial plant service.

world's largest boiler drum . . . over 100 feet long, 66 s inside diameter . . . is shown in a finishing bay at &W Barberton Plant awaiting shipment to Con Edison. ighs over 200 tons.



One of the two identical B&W units for Con Edison's Astoria and Arthur Kill Stations. It is a horizontally pressure-fired, coal-burning Radiant Boiler designed for dry ash removal. Type EL Pulverizers are used to permit reliable, efficient, direct-firing of pulverized coal. The unit has a design pressure of 2500 psi, steam temperature of 1050 F and reheat to 1000 F. The secondary superheater is located at the exit of one furnace, and the reheater at the exit of the other furnace. The primary superheater is back of both the secondary superheater and the reheater. The giant drum, with Cyclone Steam Separators for natural circulation, provides nearly 100% separation of steam from water.

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f Astoria and Arthur Kill Stations

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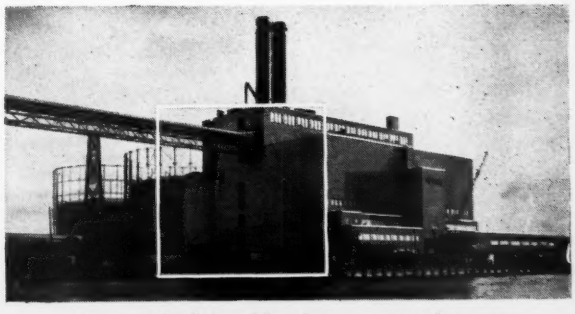

Area outlined in white shows construction area on third unit for Con Edison's Astoria Station.

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Pages with the Editors

As this issue is being distributed, the delegates and guests of the thirty-eighth annual convention of the American Gas Association are gathering for their 3-day meeting at Atlantic City, New Jersey, October 15th to 17th. Following our custom of recent years, the editors have designed this issue to be of special interest to our many friends in the gas utility business and in the natural gas industry generally.

As the opening article in this issue, we are glad to present an exclusive message from the president of the AGA for the past year, DEAN H. MITCHELL, who is also president of the Northern Indiana Public Service Company. MR. MITCHELL is a native of Erie, Pennsylvania, and attended public schools in Elgin, Illinois. He majored in economics at the University of Chicago and later attended law school at Northwestern University. He has spent more than eighteen of his thirty-one years in the utility business as president of his company, which he joined through an earlier affiliate, Calumet Gas & Electric Company, after service with the Navy in World War I. He had been auditor, comptroller, general manager, and vice president of Northern Indiana before being elected president in 1938.

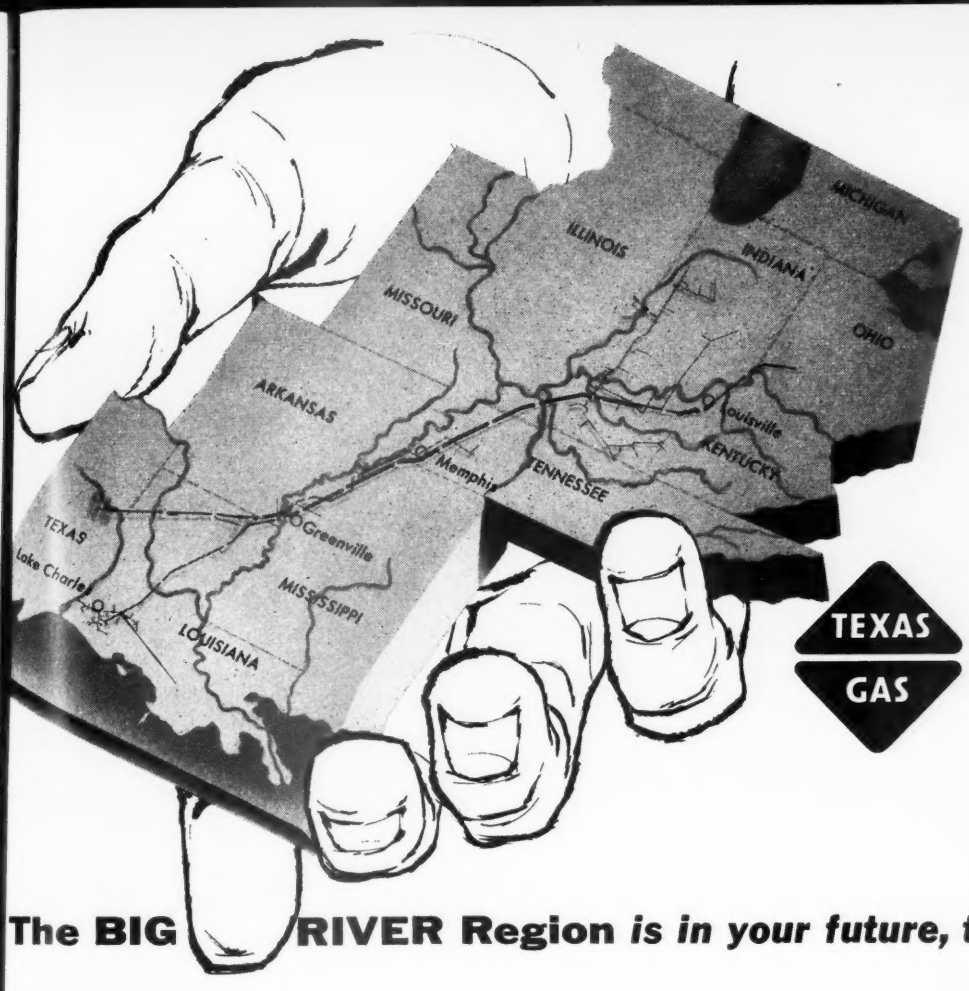
DEAN H. MITCHELL

WILLIAM R. CONNOLE

COMMISSIONER WILLIAM R. CONNOLE of the Federal Power Commission, whose article on the regulatory problems of the gas industry begins on page 655, is a native of Naugatuck, Connecticut. A graduate of Georgetown University (BA, LLB) as well as Trinity College in Hartford (MA), COMMISSIONER CONNOLE was a meteorologist with the Air Force during World War II. His previous regulatory experience includes service as an attorney examiner with the Interstate Commerce Commission and counsel with the Connecticut Public Utilities Commission (1950-55). He was appointed to the FPC in 1955 by President Eisenhower—the youngest member ever to serve.

* * * *

JAMES F. OATES, JR., whose article on the human relationship of the gas business begins on page 661, is a native of Evanston, Illinois, and a graduate of Phillips Exeter Academy, Princeton University (BA, '21), and Northwestern University Law School (JD, '24). He practiced law with the well-known Chicago law firm of Sidley, Austin, Burgess & Harper, and its predecessor (1924-43), becoming a partner in 1931. OATES saw service as an Army officer in both World War I (AEF) and as an advisory chief



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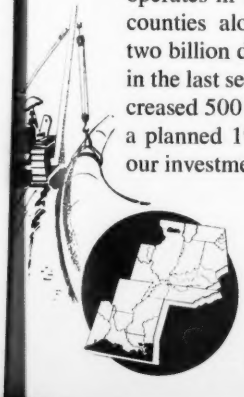

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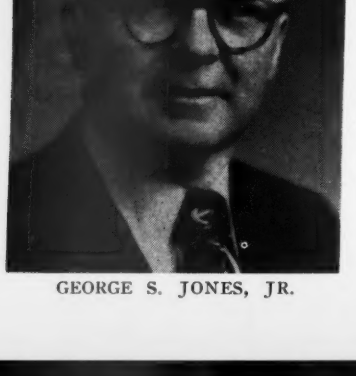
of ordinance in World War II. He is now chairman of The Peoples Gas Light and Coke Company. MR. OATES has been very active in business, professional, and educational activities on both the national and state levels.

* * * *

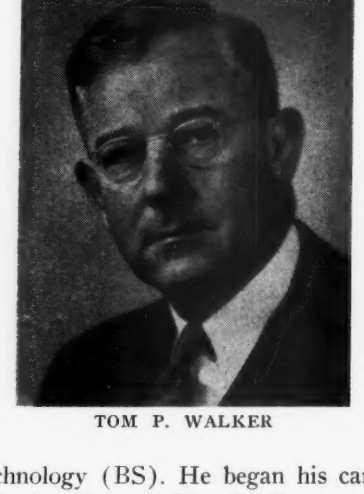
TOM P. WALKER, whose article on gas supply begins on page 666, is a veteran executive well known in both the gas and electric industries. A native of Passaic, New Jersey, and a graduate of the University of Nevada (1915), he began his career in 1910 as a meter reader, rising to general superintendent and manager of the Haverhill (Massachusetts) Gas Light Company. In 1923 to 1942 he was an official with several southern electric utility companies, including presidency of the Gulf States Utilities Company (1930-42). During World War II he was president of the Council of Electric Operating Companies, which co-ordinated the work of electric operating companies with war agencies. He became vice president of the Irving Trust Company in 1945 until 1953 when he became president of Transcontinental Gas Pipe Line Corporation, a post he now holds. In World War I he was a First Lieutenant with the AEF (Croix de Guerre and Silver Star with Oak Leaf Cluster).

* * * *

GEORGE S. JONES, JR., whose article on gas air conditioning begins on page 678, was born in Macon, Georgia, in 1891, and educated at the Georgia Institute of Technology (BS). He began his career with the General Electric Company in Schenectady, and in 1922 became assistant to the vice president in charge of sales for the Georgia Power Company. He has since served with several other southern and southwestern utility companies as well as with both Frigidaire and Servel in the electric and gas refrigeration fields, respectively. In 1936 he was made vice president in charge of sales of Servel, Inc., and in 1949 he was appointed vice president and assistant to the president of Servel. His present post is managing director of the Air Conditioning and Refrigeration Institute.



GEORGE S. JONES, JR.



TOM P. WALKER

* * * *

DR. HENRY HERZ, whose article on cost analysis and its effect on gas prices begins on page 685, is an economist and business analyst in active consulting practice in the utility field. He served as a member of the staff of the New Jersey Board of Public Utility Commissioners for eight years, giving special attention to rate and financial problems. Prior to that time, he had both utility operating and public accounting experience. He is an alumnus of New York University, having received the BS degree in 1936, an MBA. in 1939, and the PhD degree in 1951.

THE next number of this magazine will be out November 8th.

The Editors

what's the "99" doing here?

Brokerage offices use the 99 Calculator to note up the day's trading and figure their commissions. Its great speed and never failing accuracy make it a "natural" to back up stock market transactions.

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(November 8, 1956, issue)

★

OPERATION OF SURFACE CARRIERS. PART I.

Regulatory and other problems posed by operators of common contract and private carrier service over highways have had a terrific impact on the national transportation economy. These problems bear directly upon the ability of the railroads to maintain their financial strength and to continue as the "hard core" of our transportation system. In view of the importance of the problems discussed herein David I. Mackie, of New York, chairman of the Eastern Railroad Presidents Conference, has written a complete and thoroughly documented account of the law and principles involved. This is a 2-part series, the first part of which stresses the importance of dealing with such problems at both the administrative and legislative levels.

POWER SHORTAGE IN THE PACIFIC NORTHWEST

Commercial electric companies in the Pacific Northwest area have the know-how, the credit, and the continuity of management to carry out a long-range program of power development to provide for their future needs. They have demonstrated through operation of the Northwest Power Pool that they can work in harmony with each other and with government power agencies. But this requires permission from both state and federal governments. Ernest R. Abrams, economist and author of business articles of New York city, has outlined the purpose of the power company plans to end the power shortage in the Pacific Northwest.

CORPORATION POLICY GOES TO SCHOOL

Joseph K. Gilbert, on the Seattle public relations staff of the Pacific Telephone and Telegraph Company, tells us about the appearance of officials of that company before students during an economic college course session on utility corporation policy and management. Both faculty members and telephone company officials tried to make this a discussion course, not a lecture series. Classroom participation was stressed. What were some of the questions asked and what was the reaction on the students? This article tells the story of an interesting experiment.

★

Also . . . ***Special financial news, digests, and interpretations of court and commission decisions, general news happenings, reviews, Washington gossip, and other features of interest to public utility regulators, companies, executives, financial experts, employees, investors, and others.***

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Remarkable Remarks

"There never was in the world two opinions alike."
—MONTAIGNE

JEROME K. KUYKENDALL
Chairman, Federal Power Commission.

". . . the commission has experienced what is probably the greatest reversal since Serutan. I refer, of course, to the Supreme Court's decision in the Phillips Petroleum Company Case."

Excerpt from "The Peoples' Voice," published by The Peoples Natural Gas Company.

"The workingman should get out his pencil, add up the tax deductions on his check, and multiply the figure by the number of checks he receives in a year's time. He is likely to be astounded. Probably, too, he'll be more suspicious of the self-styled representatives of the workingman who have endorsed these recurring assaults on the pay check."

M. J. RATHBONE
President, Standard Oil Company of New Jersey.

"Certainly there is no reason for any businessman to feel that the job of better public understanding is accomplished just because business is a popular subject these days. Familiarity is no substitute for understanding. And real understanding is worth working for, since the future of our industrial economy is at stake and, along with it, the future of every American."

EDITORIAL STATEMENT
Los Angeles Times.

"The arguments for a ban on nation-wide strikes are strong. One thing Congress should do by all means is to follow the example of several states and ban strikes in public utilities. Here is a field where compulsory arbitration seems to be the only remedy. Strikes against public utilities are intolerable, but there must, of course, be some sort of machinery for redress of grievances."

RAY D. MURPHY
Chairman of the board, Equitable Life Assurance Society of the United States.

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Chairman of the board, W. R. Grace & Co.

"Only recently we have observed the spectacle of political hearings designed to pump life back into a fallacy that was deflated in the thirties. I refer to the attempt to obtain federal licensing of corporate enterprise on the excuse that this will somehow bring greater benefits to all of us than we now enjoy. And the worn-out old sophistries of the depression are being taken out from under the counter and dusted off to be offered to the American public as new merchandise. Here is nothing more than a device to create Big Government and horse-and-buggy business, Big Bureaucrats and little people."

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104 years of experience

bringing dependable gas service to California

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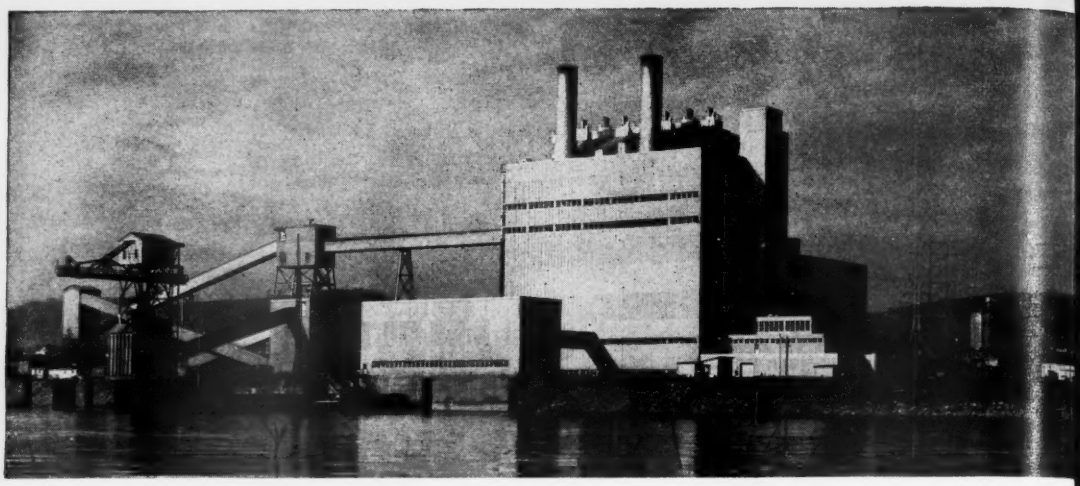
P. G. and E. *Pacific Gas and Electric Company*



Q-Panel walls grace the new Elram Plant (above) near Pittsburgh. It was by Duquesne Light Company's Eng and Construction Department. The Corporation was General Contractor.

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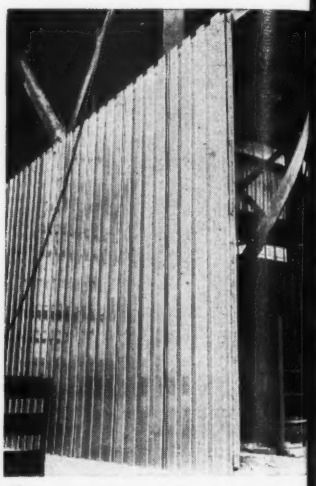
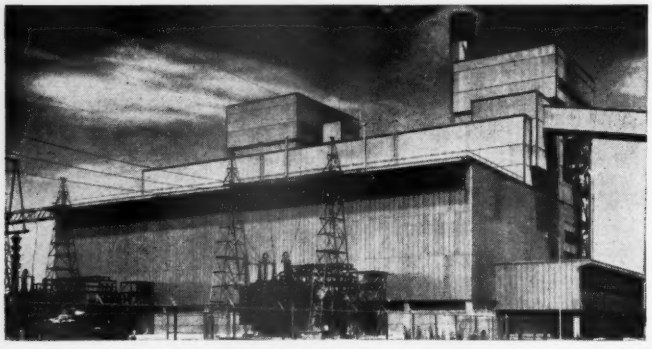


Q-Panel walls (above) go up quickl any weather because they are dry hung in place, not piled up.



More than 32,000 sq. ft. of Q-Panels w to enclose the impressive Hawthorn Electric Station (left) of the Kansas Cit souri, Power and Light Company. Ebas vices, Inc., designed and built the plan

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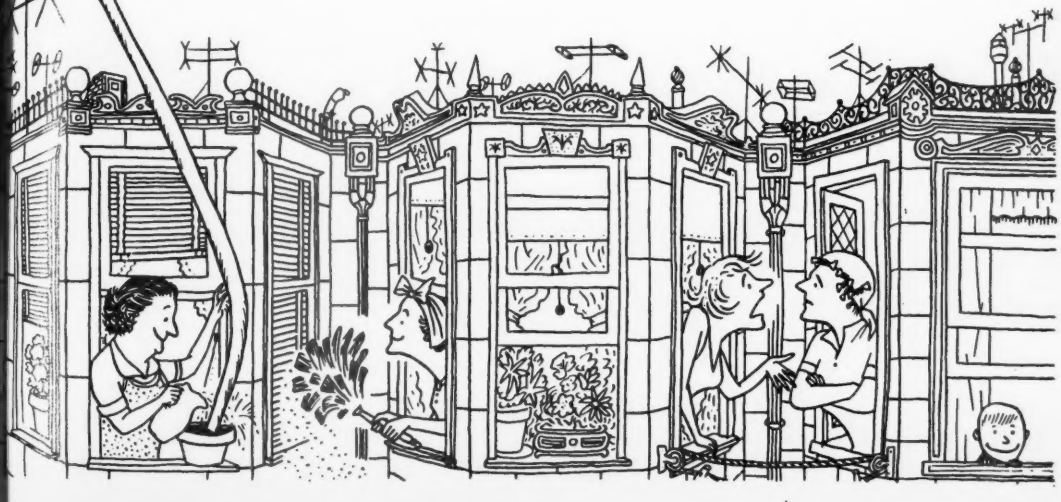
The Brooklyn Union GAS Company



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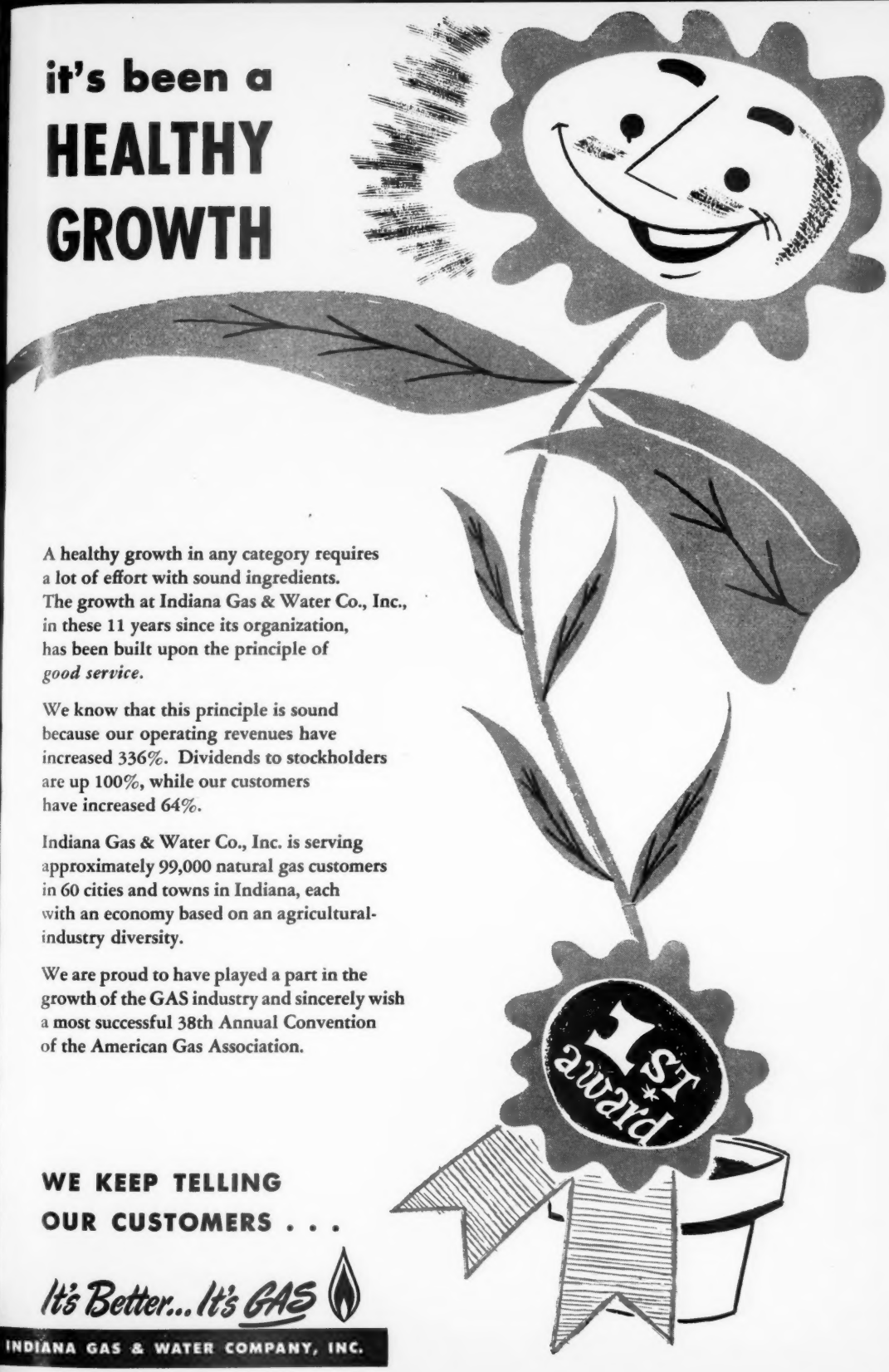


A healthy growth in any category requires a lot of effort with sound ingredients. The growth at Indiana Gas & Water Co., Inc., in these 11 years since its organization, has been built upon the principle of *good service*.

We know that this principle is sound because our operating revenues have increased 336%. Dividends to stockholders are up 100%, while our customers have increased 64%.

Indiana Gas & Water Co., Inc. is serving approximately 99,000 natural gas customers in 60 cities and towns in Indiana, each with an economy based on an agricultural-industry diversity.

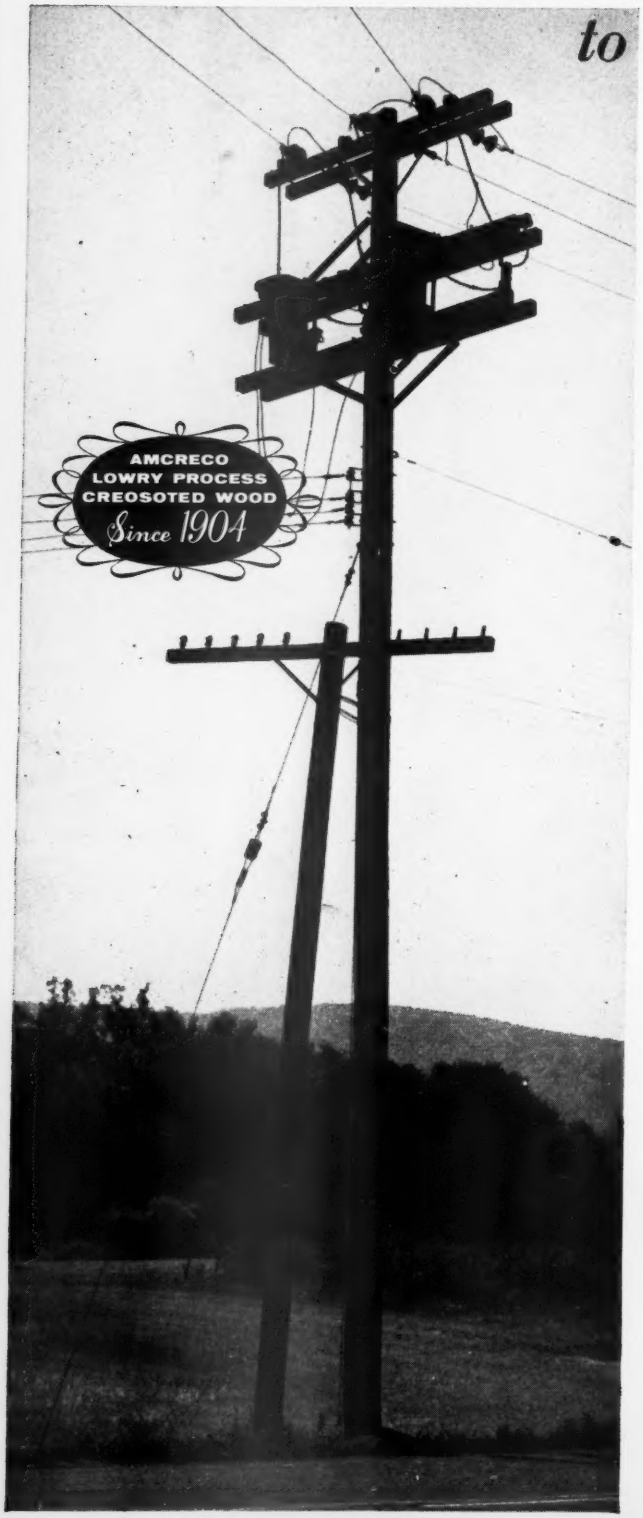
We are proud to have played a part in the growth of the GAS industry and sincerely wish a most successful 38th Annual Convention of the American Gas Association.

WE KEEP TELLING OUR CUSTOMERS . . .

It's Better... It's GAS

INDIANA GAS & WATER COMPANY, INC.

The best way to give
LONGER SERVICE LIFE
to wood products



The surest method of prolonging and strengt the service life of wood products is by pres treating them in creosote. Poles, crossarms, conduit and other construction woods treate in creosote have lasted for years and years, with great strength throughout the life of t wood, and with high resistance to fungi, bor insects and all natural enemies of wood.

But as effective as creosote may be, it still to be applied properly for maximum results. where the American Creosoting Company ente the picture. Amcreco's creosoted materials h undergone the test of time, and their record of long, long years of service proven.

Since its inception, over fifty years ago, th American Creosoting Company has been dire concerned with improving the quality of cr treatment. Amcreco's continuous program of r and development has brought improvements and refinements in the basic creosoting proce *Amcreco's pressure treatment creosoting meth are more effective than ever.*

Learn for yourself what these improvemen can do for you. Take advantage of our half a ce of experience. Write your nearby Amcreco sale Find out how you can receive the finest in tre wood products plus the service to go with it!

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Federal Creosoting Company
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LOWRY PROCESS
CREOSOTED WOOD

Gulf States Creosoting
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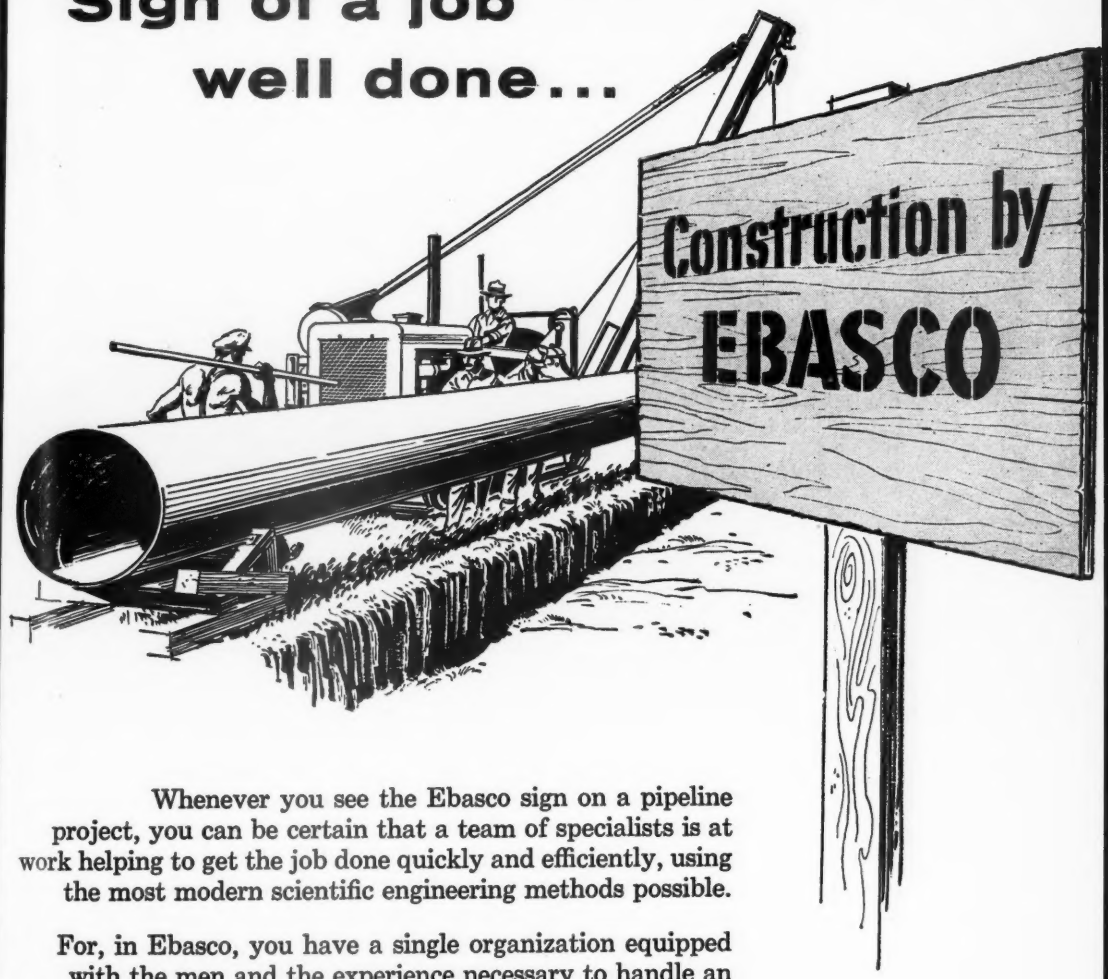
Kettle River Comp

Georgia Forest Products Company

GENERAL OFFICES: LOUISVILLE 2, KENTUCKY

Sign of a job well done...



Whenever you see the Ebasco sign on a pipeline project, you can be certain that a team of specialists is at work helping to get the job done quickly and efficiently, using the most modern scientific engineering methods possible.

For, in Ebasco, you have a single organization equipped with the men and the experience necessary to handle an entire project—from initial planning to the designing boards, through construction to actual operation.

We will be glad to send you our booklet "The Inside Story of Outside Help", describing the many services Ebasco makes available to you.

Write: Ebasco Services Incorporated, Dept. W, Two Rector Street, New York 6, N. Y.

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Ebasco Teamwork Gets Things Done Anywhere in the World

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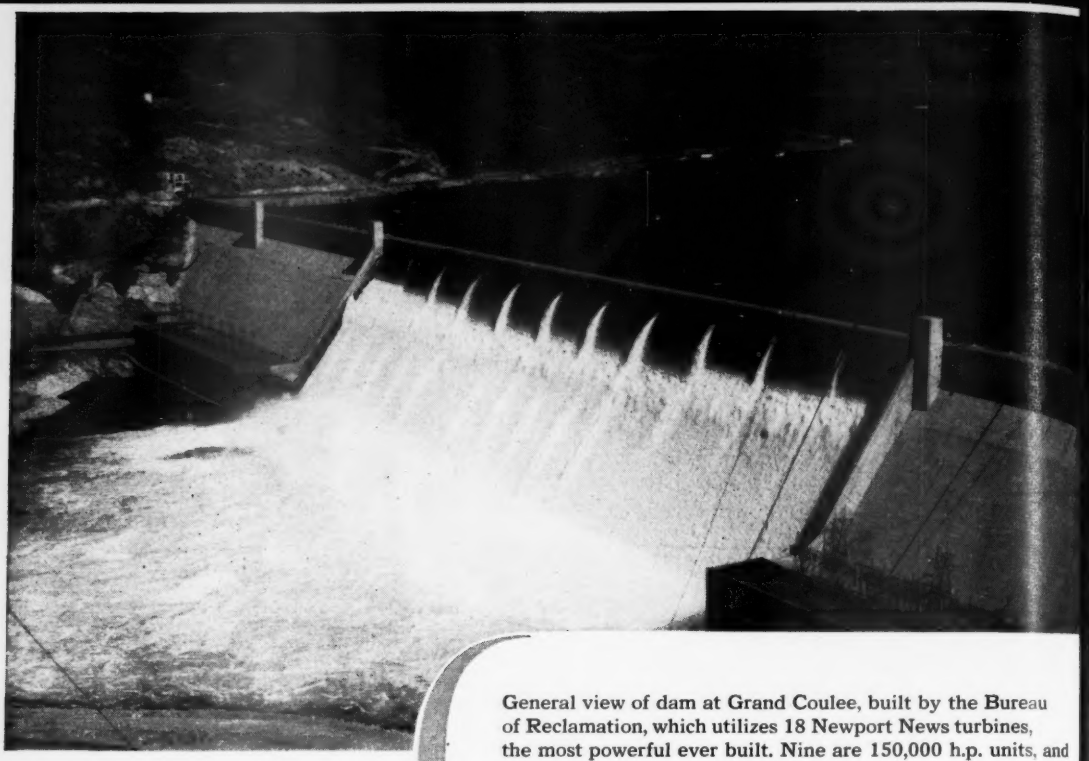


General view of dam at Grand Coulee, built by the Bureau of Reclamation, which utilizes 18 Newport News turbines, the most powerful ever built. Nine are 150,000 h.p. units, and the other nine are rated at 165,000 h.p. each.

Specialists ... in building Water Power Equipmen

Typical Users of Newport News Equipment

PLANT	LOCATION
Boone	Tennessee
Buchanan	Texas
Caonillas	Puerto Rico
Chief Joseph	Washington
Clark Hill	South Carolina
Deer Lake	Newfoundland
Folsom	California
Fort Patrick Henry	Tennessee
Hiwassee	Tennessee
Hoover	Nevada
J. H. Kerr	Virginia
Jim Woodruff	Florida
Lower Salmon	Idaho
Norris	Tennessee
Rock Creek	California
Santee-Cooper	South Carolina
C. J. Strike	Idaho
Whitney	Texas
Wilson	Alabama

Turbines designed and built for the world's largest development at Grand Coulee... and for other hydroelectric installations in America and various parts of the world... bespeak the skill and facilities offered by Newport News.

This trained organization has filled hydroelectric turbine contracts with an aggregate rated output of 7,000,000 horsepower.

Other equipment designed and built by Newport News includes penstocks, pressure regulators, valves, pumps, gates and rack rakes. Upon request, a copy of our illustrated booklet entitled "WATER POWER EQUIPMENT" will be sent to you.

Newport News
SHIPBUILDING AND DRY DOCK COMPANY
Newport News, Virginia

75 Years Young

We're preparing to celebrate our Diamond Jubilee on June 1, 1957. In retrospect, we believe these 75 years, full of enriching experience as they have been, have taught us many lessons we need in order to meet the problems of the future.

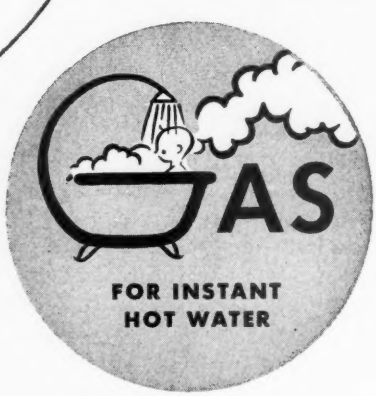
We look forward confidently, believing that the growth of the past in the communities U.G.I. serves in Eastern Pennsylvania, is only an indicator of a bigger and better tomorrow.

The availability of adequate supplies of natural gas and the confidence we have in the superiority of this incomparable, all-purpose fuel for use in homes, industries and commercial businesses, combine to make us look enthusiastically to the future.

THE UNITED GAS IMPROVEMENT COMPANY

UGI

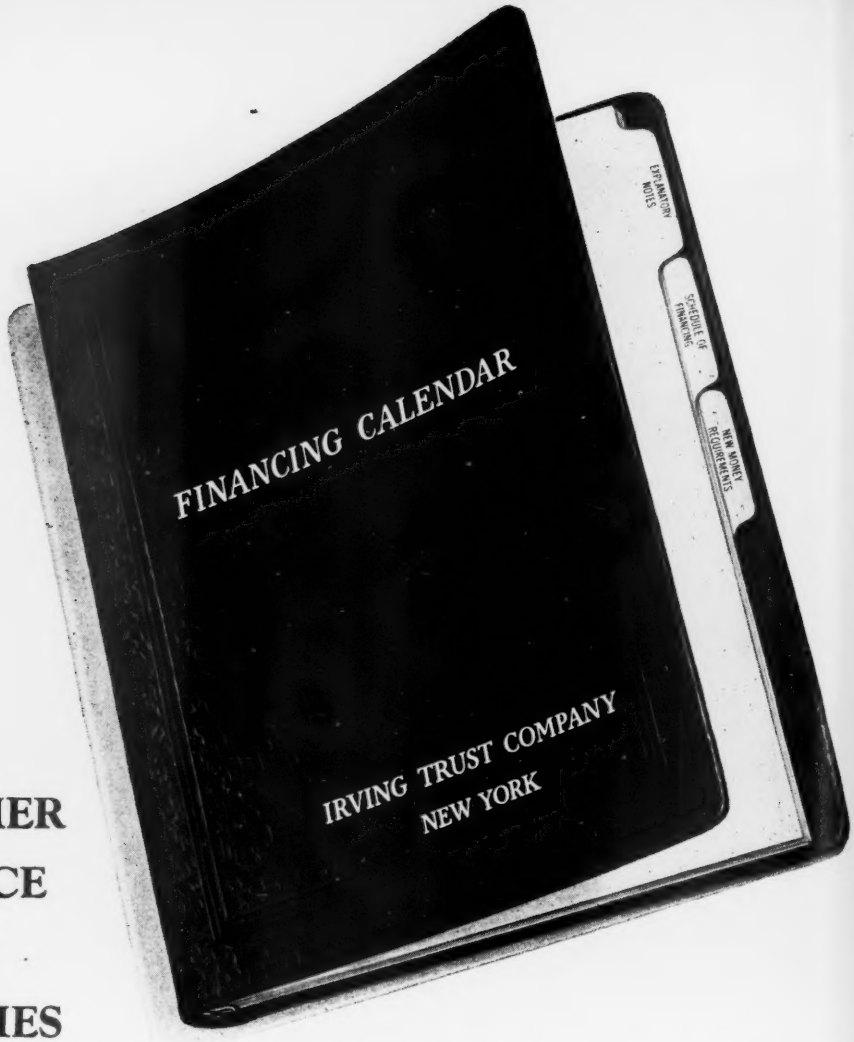
Columbia Gas System
delivers a modern miracle
24 Hours-A-Day!



THE COLUMBIA GAS SYSTEM

CHARLESTON GROUP: United Fuel Gas Company, Atlantic Seaboard Corporation, Amere Gas Utilities Company, Virginia Gas Distribution Corporation, Big Marsh Oil Company, Central Kentucky Natural Gas Company; COLUMBUS GROUP: The Ohio Fuel Gas Company, Natural Gas Company of West Virginia; PITTSBURGH GROUP: The Manufacturers Light and Heat Company, Binghamton Gas Works, Cumberland and Allegheny Gas Company, Home Gas Company, The Keystone Gas Company, Inc.; OIL GROUP: The Preston Oil Company.

Skyscrapers of the Southwest
Standing tall against the horizon, these Southwestern skyscrapers symbolize the contributions of the natural gas industry to the ease and comfort of modern living.
After 27 years of public service in the Southwest, Southern Union Gas Company today supplies natural gas to more than 282,000 customers . . . domestic, commercial and industrial . . . in 62 towns and cities in Texas, New Mexico, Colorado and Arizona, with a population in excess of one million people. Serving an area now on the threshold of its greatest development, Southern Union has grown with the Southwest . . . and has helped the Southwest to grow . . . by providing dependable, convenient, economical natural gas service.
Southern Union Gas Company
C. H. ZACHRY, President
Headquarters: DALLAS, TEXAS



ANOTHER SERVICE FOR UTILITIES

THE FINANCING CALENDAR

A comprehensive schedule of forthcoming security offerings, furnished regularly to utility companies to help prevent financing "log jams."

Better spacing of new offerings can mean higher prices to the issuers.

This service, available to the entire utility industry, has become feasible through the constant co-operation of the individual utility companies in furnishing their financing schedules.

IRVING TRUST COMPANY

One Wall Street, New York 15, N.Y.

Capital Funds over $127,000,000 — *Total Assets over $1,500,000,000*

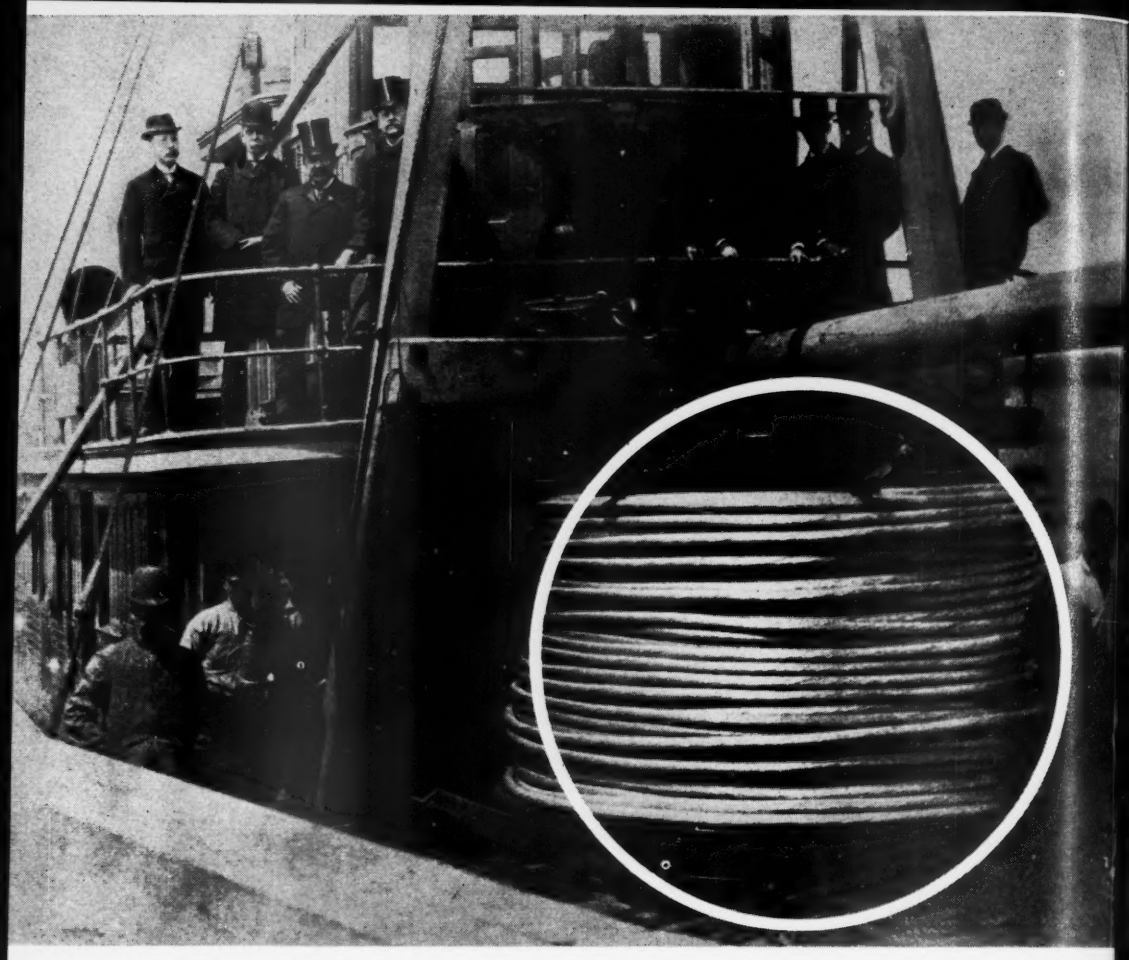
WILLIAM N. ENSTROM, *Chairman of the Board* — RICHARD H. WEST, *President*

Public Utilities Department—JOHN F. CHILDS, *Vice President in Charge*

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

Serving the Nation's Capital since 1848

WASHINGTON GAS LIGHT COMPANY



1880 *preferred then . . . and now*

THIS reproduction was made from an old photograph dated 1880, found in the Kerite archives at Seymour, Conn. It was taken as the steam tug "Western Union" completed the laying of an 18-conductor Kerite insulated submarine telegraph cable from New York, under the Hudson River, to Jersey City. It indicated that Kerite insulated cable was contributing to the furtherance of submarine telegraph circuits long before the turn of a century.

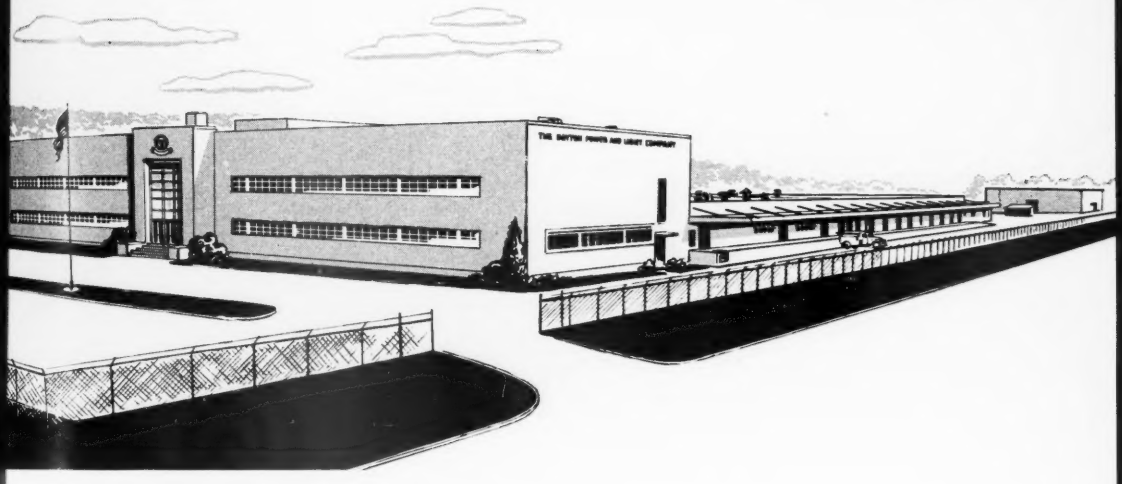
The value and service life of a product can be no greater than the integrity and craftsmanship of its maker.

DAYS FERITE

KERITE CABLE

THE KERITE COMPANY—30 Church St., New York 7, N. Y.
Offices also at 122 S. Michigan Ave., Chicago; 582 Market St., San Francisco; 3901 San Fernando Rd., Glendale 4, Calif.; 31 St. James Ave., Boston

This Symbol of Service has a new home!



The Dayton Power and Light Company has spent $151,000,000 for expansion since World War II. Our plans include building as many facilities in the next *ten* years as we did in the past *forty!* This new $3,800,000 Service Building is the latest step in our program to keep ahead of the increasing demand for our gas and electric services.

This new headquarters for the gas and electric distribution system in our Dayton area contains the finest equipment, and the newest developments for efficient operation. It is completely air conditioned and heated with gas. Its facilities have been designed for *today's* operations, and for *the growth we know is coming in the next years.*

THE DAYTON POWER AND LIGHT COMPANY

Gas and Electric Building • Dayton 1, Ohio

WATCH WESTINGHOUSE . . .

WHERE BIG THINGS ARE HAPPENING FOR THE UTILITY INDUSTRY

Westinghouse goes into production of rare metals to pave way for new electrical devices

The years since the war have been a period of great developments in the electrical manufacturing industries. Many of the new products which are coming out of this period call for metals and alloys which never existed before.

The metals industries . . . which would normally have carried on this development work . . . have had enormous development work of their own to carry on, and, besides, many of the new metals required by the electrical manufacturing industry are needed in quantities too small to be worth while to the metals industries, which deal in huge tonnages.

To prevent this situation from acting as a curb in the growth of the electrical industry, Westinghouse and other companies have gone into development work on new metals.

Westinghouse has built a new plant at Blairsville, Pa. for the production of precision castings, magnetic alloys and sensitive metals, and another at Youngwood, Pa. which is working on semi-conductors, and similar products.

Westinghouse Research Laboratories are working on many new metals and methods to help the electrical industry continue on its fabulous expansion.

Westinghouse

ELECTRIC CORPORATION

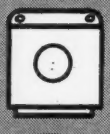
PITTSBURGH, PA.

In New Jersey GAS serves in 7 Wonderful Ways

Blue Flame Homes in the Public Service Area use GAS for —

COOKING

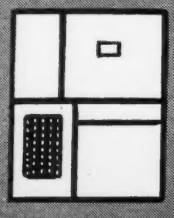
WATER HEATING



CLOTHES DRYING

REFRIGERATION

INCINERATOR

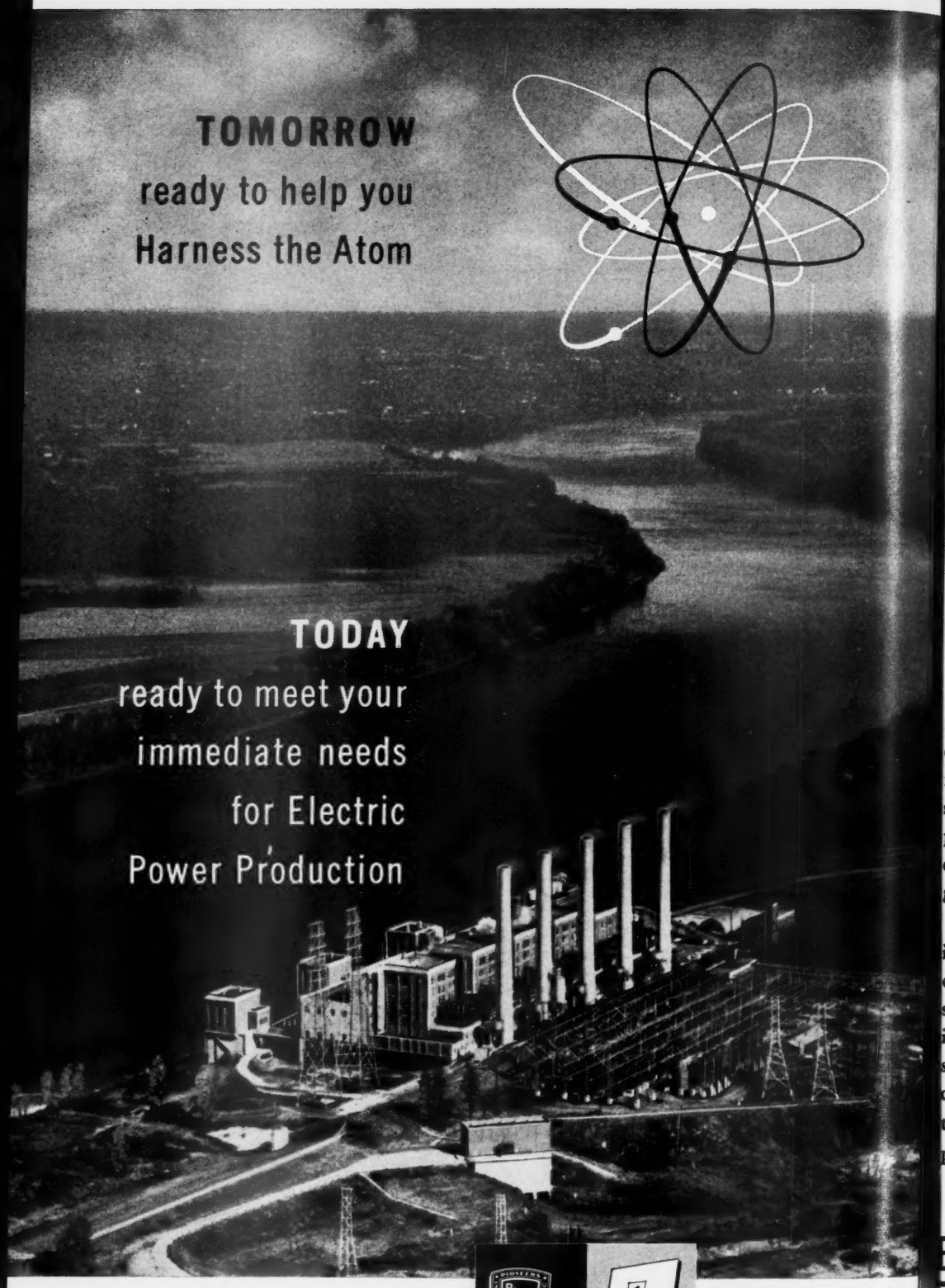


HOUSE HEATING AND AIR CONDITIONING

In the years ahead, Public Service looks forward to serving more and more customers with gas in more and more ways.

PUBLIC SERVICE

A-455-56



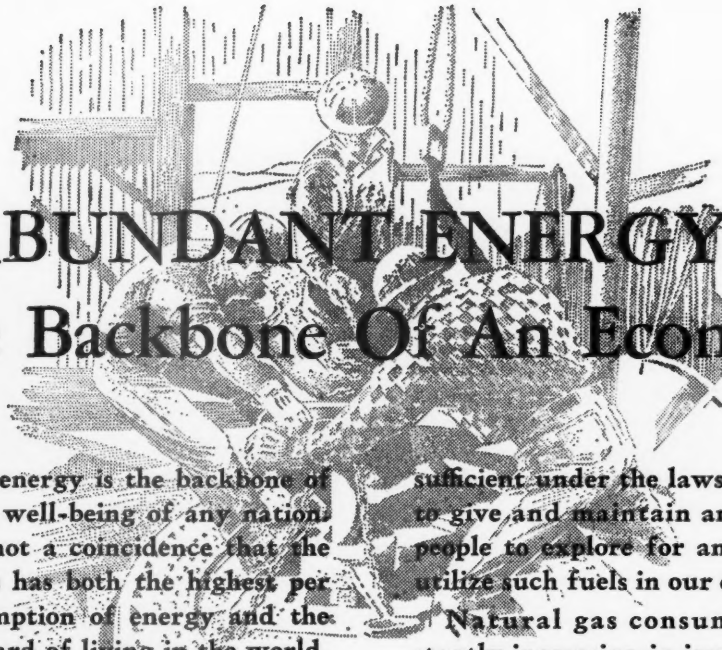
Pioneer Service & Engineering Co.

231 SOUTH LA SALLE STREET • CHICAGO 4, ILLINOIS

PSE&C PIONEERING 54 YEARS

Serving power plant needs of Industries and Utilities for 54 years.

Send for our descriptive booklet, "Pioneering New Horizons"



ABUNDANT ENERGY—
The Backbone Of An Economy

Abundant energy is the backbone of the economic well-being of any nation. Hence, it is not a coincidence that the United States has both the highest per capita consumption of energy and the highest standard of living in the world. We have been able to make and enjoy more physical goods than any other nation because we have been able to employ larger supplies of energy fuels to run our factories and transportation systems and to serve our homes. The principal energy fuels utilized in our economy today are coal, oil and natural gas.

However, the mere bounty of nature in locating energy fuels within our borders does not per se account for our high standard of living. Adequate economic incentives have had to be working to stimulate our people to discover, produce, and utilize these energy fuels for the advancement of mankind. Thus, the price received for these fuels must be sufficient under the laws of competition to give and maintain an incentive for people to explore for and produce and utilize such fuels in our economy.

Natural gas consumption is constantly increasing in importance and in 1955 accounted for one quarter of the total energy consumed in this country. El Paso Natural Gas Company plays a substantial role in this expanding position of natural gas. The El Paso company produces and transports natural gas to rapidly growing markets in the Southwest and California. In 1955 over two-thirds of the gas sold to over 3,600,000 customers in California by local distribution companies was gas purchased from the El Paso company under long-term contracts. The El Paso company pledges its whole-hearted efforts to help keep energy in abundant supply so that our economy can continue to grow and expand.

EL PASO NATURAL GAS COMPANY

Whether in general operations, financing, engine ing or other business matters, the consulting a advisory services of Commonwealth can be of ma rial assistance.

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TAXES
DEPRECIATIO
ACCOUNTING

UTILITIES *A·l·m·a·n·a·c·k*

OCTOBER-NOVEMBER

Thursday—25

Northwest Public Power Association, Power Use Section, begins meeting, Pasco, Wash.

Friday—26

National Safety Council ends 5-day meeting, Chicago, Ill.

Saturday—27

American Petroleum Institute will hold meeting, Chicago, Ill. Nov. 12-15. ***Advance notice.***

Sunday—28

American Bar Association ends 3-day meeting of board of governors and section chairmen, Chicago, Ill.

Monday—29

Montana State Rural Electric Co-operative Association begins annual meeting, Lewiston, Mont.

Tuesday—30

National Electrical Manufacturers Association will hold meeting, Atlantic City, N. J. Nov. 12-16. ***Advance notice.***

Wednesday—31

New England Gas Association, Operating Division, begins meeting, Hartford, Conn.

NOVEMBER

Thursday—1

American Home Laundry Manufacturers Association begins meeting, Chicago, Ill.

Friday—2

Virginia-West Virginia Independent Telephone Association ends 2-day joint convention, Roanoke, Va.

Saturday—3

National Hotel Exposition will be held, New York, N. Y. Nov. 12-16. ***Advance notice.***

Sunday—4

American Gas Association will hold gas industry sales clinic, Chicago, Ill. Nov. 15, 16. ***Advance notice.***

Monday—5

Southern Gas Association begins air - conditioning sales round-table conference, Tulsa, Okla.

Tuesday—6

South Carolina Independent Telephone Association ends 2-day annual convention, Clemson, S. C.

Wednesday—7

American Water Works Association, Virginia Section, begins annual meeting, Old Point Comfort, Va.

Thursday—8

Oklahoma Independent Telephone Association ends 2-day annual convention, Oklahoma City, Okla.

Friday—9

Southern Gas Association begins customer accounting round-table conference, Savannah, Ga.

Courtesy, Central & South West Corporation

An Industrial Jeweled Necklace Shines at Night

Great Southern Refinery, Corpus Christi, Texas.

Public Utilities
FORTNIGHTLY

VOL. 58, NO. 9 OCTOBER 25, 1956

An Industry with a Future

The gas industry claims to have the finest fuel in the world to deliver to the great markets of the nation—markets which are increasing constantly. This puts heavier burdens of responsibility on the gas industry.

BY DEAN H. MITCHELL*
PRESIDENT, AMERICAN GAS ASSOCIATION

IN accepting the nomination of the Republican party at San Francisco, President Eisenhower referred to his political party as "The Party of the Future." I would like to paraphrase Ike's oratory a little and designate the gas industry as an industry with a future.

Truthfully, ours is an industry that has taken great strides this year and there is every indication that this progress will continue for years ahead. Each year, almost since the end of World War II, we have established new records in the number of customers we serve, in the volume of gas we sell, and in the revenues we receive from the sale of gas. When the final records are written for 1956, they will show we are still advancing along the road of progress.

WE are adding new customers at a rate of about one million a year and current studies indicate that at the end of 1956 we will be serving more than thirty million customers with over 72 billion therms of gas. Revenues in the gas utility

*Also president of the Northern Indiana Public Service Company, Hammond, Indiana. For additional personal note, see "Pages with the Editors."

and pipeline industry will be more than $4 billion.

Our facilities will have to be expanded continuously to keep pace with this tremendous growth. The ability to cope with this situation is indicated in statistical reports which show that the gas utility and pipeline industry will spend a record-breaking $1.6 billion in 1956 for new construction and for expansion of present facilities. In the four years from 1956 through 1959, the gas industry has earmarked a total of $7.3 billion for new construction. This is the greatest sum ever expended by our industry in any four-year period in its history.

THIS year's expenditure will bring the industry's total investment in plant and other gross assets to $17.5 billion. With investment increasing at a rate of approximately $1 billion a year, the gas industry will be a $20 billion industry by 1960. When we consider that back in 1945, the industry's gross assets were about $5 billion, we can proudly state that ours is perhaps the only major, basic industry, that has quadrupled its gross assets in a decade and a half.

Some 96 per cent of the estimated construction expenditures for the next four years will be spent on natural gas expansion. Natural gas transmission lines alone will account for $3 billion with an additional $2.5 billion going for distribution systems of natural gas utility companies.

Sometimes the question arises as to whether the gas industry will have sufficient resources to continue to serve this ever-increasing market. Again, our past history and present estimates point conclusively to a source of supply that will last for many years. At the beginning of 1956, the committee on natural gas reserves of the American Gas Association, estimated that the proved recoverable reserves of natural gas in the United States totaled nearly 224 trillion cubic feet. Production of natural gas during 1955 totaled more than 10 trillion cubic feet, yet the industry gained a total of 12 trillion cubic feet over reserves of 211.7 trillion cubic feet a year earlier, despite the record use of natural gas during the year. The gain made in 1955 was the second largest registered for any year since 1945 when AGA initiated official estimates compiled by outstanding expert geologists, engineers, and producers. I believe that most of the readers of PUBLIC UTILITIES FORTNIGHTLY understand that these estimates are based on *proved* recoverable reserves in fields and areas now actually under production. Unofficial, yet reliable, estimates made by outstanding experts in this field place the total economically recoverable reserves of natural gas in the United States at volumes ranging from 500 to 750 trillion cubic feet. So even at today's accelerating rate of gains in natural gas production, it would seem almost evident we will be able to supply our customers for several decades to come.

IT is not only in areas of sales and reserves that our industry is making great gains. Because of its dynamic nature our industry cannot remain stagnant. We are the first to admit that the gas industry today faces fierce competition, often in fields that we once considered almost impregnable. We are fully aware of the tremendous promotional efforts our competition is making in the cooking, water heating—yes—even in the house-heating markets. And we are meeting these efforts—we be-

lieve — in a highly succesful manner.

Lacking the great industrial giants with untold millions to back their promotions that our competition enjoys—the gas industry in the past decade or more has relied on unity and co-ordination within its ranks. We have developed industry programs that have enjoyed more than modest success in matching the advertising and promotion efforts of our competitors.

Perhaps the best known of these programs is the gas industry's Promotion, Advertising, and Research Program (PAR). And in the last year a fourth branch, Public Information, has been added to the initial trio.

Now in its twelfth successful year, more than $21,000,000 have been subscribed voluntarily by gas utility and pipeline companies to this activity. Those dollars have enabled us, at least to match in part, the great campaigns being carried on by our electric competition.

This year, for example, our national advertising budget will exceed $1,000,000. Not all of these dollars came directly from the PAR funds. But through AGA's cooperative program, manufacturers of gas appliances have augmented their individual advertising expenditures by about one-quarter million dollars in support of the AGA campaign. Plans have been completed which assure another $100,000 or more to further strengthen this national advertising effort.

OUR promotional campaigns in the current year have been exceptionally successful. The Mrs. America contest, sponsored by the gas industry, has become one of the nation's outstanding prestige promotions. More than 100 gas utility companies joined in the 1956 campaign. We are now starting on the 1957 Mrs. America contest and we know this will enjoy even greater participation by the gas companies.

AGA and Colgate-Palmolive Company united in what proved to be one of the greatest laundry promotions ever staged. The Old Stove Roundup, last year, induced some 425,000 people to invest $90,000,000 in new gas ranges. This year, more than 250 gas utility companies will participate in this national promotion, and it is possible that the 1955 volume may be doubled.

In 1957, for the first time in its long history, the gas industry will sponsor a television program. During the past few months, three important segments of the gas industry—utilities, transmission companies, and manufacturers—have jointly subscribed approximately $2,500,000—in

"SOME *96 per cent of the estimated construction expenditures for the next four years will be spent on natural gas expansion. Natural gas transmission lines alone will account for $3 billion with an additional $2.5 billion going for distribution systems of natural gas utility companies. Sometimes the question arises as to whether the gas industry will have sufficient resources to continue to serve this ever-increasing market. Again, our past history and present estimates point conclusively to a source of supply that will last for many years.*"

addition to the PAR funds subscription—for a national TV program to be presented in 100 or more leading cities.

More than $1,160,000 will be devoted this year to gas utility research projects with an additional quarter-million dollars for pipeline research. We are devoting about $400,000 to air conditioning, with several manufacturers spending hundreds of thousands of additional dollars in this important field. The gas industry has made tremendous advances in year-round air conditioning and will be ready in the near future to launch aggressive merchandising programs aimed at capturing this rich market. Many dramatic appliance improvements have resulted from research work done in the AGA Laboratories in Cleveland under the PAR plan. Our appliance manufacturers also have developed some outstanding features. Today most of our ranges are completely automatic and are equipped with top-burner time controls, oven controls, single point, matchless ignition, and feature burners that cook faster than any other range.

These improvements have been incorporated in other gas appliances and today gas appliances are the smartest, most modern, and most efficient that a customer can purchase. And each appliance carries the AGA Seal of Approval, meaning that it has passed the 300 or more tests for safety, durability, and performance that are the rigid requirements of the industry's testing laboratories at Cleveland and Los Angeles. Ninety-five per cent of all gas appliances sold today bear this badge of customer protection.

It is this confidence in the constant improvement in design development of our appliances and the intensive advertising and merchandising effort that we are putting behind our sales efforts, that leads the AGA Bureau of Statistics to estimate that in the fifteen years from 1960 through 1974, the gas industry will have an achievable market for 77,000,000 gas ranges. In a previous forecast, the statistical bureau had estimated that, from 1955 through 1959, there was a potential market for 17,500,000 new gas ranges with a maximum of production activity and product development.

More than 16,000,000 gas water heaters can be sold from 1955 to 1959, and in the succeeding decade and one-half, there would be a market for 64,000,000 water heaters based on estimated population growth and home-building forecasts.

The gas industry is adding new gas house-heating customers at a rate of more than 1,250,000 a year and this increase is expected to continue at that rate for the next three years at least, when about 4,000,000 new gas-heating customers will be added to utility lines.

AGA estimates indicate a potential market for nearly 5,000,000 central heating units from 1955 through 1959, and achievable sales of about 20,000,000 more in the 1960-74 period. Other long-range estimates made by the AGA Bureau of Statistics for the 15-year period after 1959 include approximately 5,000,000 gas incinerators and about 15,000,000 gas clothes dryers.

There is another area in which the entire gas industry has forged ahead in the past year or two. This is the area of public relations. For many years the gas industry had all the factors of public benefit on its side but mostly took them for granted. It rendered excellent service

Efficiency of Energy Transmission via Gas

"OUR transmission carriers have developed the ablest and most efficient method known of transmitting energy over great distances. Today natural gas supplies about 26 per cent of the energy needs of the United States. The gas industry is a great industry and it must stay that way. It can do so only by working together as a single team. No single element of the industry can succeed without the help and support of the other segments, whether it be producer, transmission company, or distributor."

but neglected to tell the public about it.

The new AGA Public Information Program is supplying part of that need. Successful efforts are being made to stimulate greater public understanding of the gas industry at the national level. Every available technique is being utilized to tell the story of the modern gas industry to employees, customers, stockholders, and other important groups.

Another important program that is contributing to the future of the gas industry is the Gas Industry Development Program. Excellent work has been done in stimulating our industry to increase the promotion of gas and gas appliances. A series of executive round-table meetings was held in ten leading cities throughout the country where presentations were made of the sales, promotional, and advertising materials available under PAR, as well as the research and public information aspects of the Promotion, Advertising, and Research (PAR) Program. The committee guiding this program has taken the initiative in endeavoring to assist the industry to solve some of its perplexing problems. It recommended that manufacturers and utilities adopt a common advertising and promotional theme describing the new and revolutionary top-burner control to minimize customer confusion. Gas utility companies were asked to co-operate in the field testing of newly developed gas appliances. The committee authorized the preparation and distribution of a series of

short, pertinent booklets designed to implement various phases of the Gas Industry Development Program. It recommended that automatic lighting be made an AGA mandatory requirement for all domestic gas burners, and also recommended that automatic lighting for ovens and broilers become a mandatory requirement to go into effect not later than January 1, 1959. The committee points out that in the interest of maintaining and expanding the gas-cooking load and in the interest of safety of gas service, and in the interest of its customers, the industry must put its best foot forward by aggressive promotion and advertising, particularly with the dealers, of completely automatic ranges.

THE gas industry has worked efficiently and economically. The management and operation of the gas utilities and pipeline companies are in capable hands. With wage rates and taxes doubling in the past decade, with material costs increasing at the wellhead, in several instances gaining in excess of 200 per cent, it is the miracle of this inflationary age that the cost of gas to consumers in the same ten years has increased only 16 per cent.

Our transmission carriers have developed the ablest and most efficient method known of transmitting energy over great distances. Today natural gas supplies about 26 per cent of the energy needs of the United States.

The gas industry is a great industry and it must stay that way. It can do so only by working together as a single team. No single element of the industry can succeed without the help and support of the other segments, whether it be producer, transmission company, or distributor.

Differences of opinion arose within the industry concerning the effects of legislative regulation of the natural gas producers. Such differences were honest opinions. Now that the Harris-Fulbright Bill has been vetoed, it is urgent that the industry again achieve nation-wide co-ordination and co-operation. Most of the problems facing us are not unique with a gas utility company, or a transmission company or a producer. We must find a common approach to their solutions. And while each segment of the industry should and must retain its principles and beliefs, the different branches also must remain fully aware of their individual and collective responsibilities to our customers—the public.

TODAY the gas industry stands on a high plateau of investor confidence. With natural gas now accounting for about 95 per cent of the yearly output, we face a bright and optimistic future. Proved reserves continue to increase at a faster rate than they are being consumed. Our industry seems well assured of rising earnings. Natural gas stocks in general have proved good income producers.

While it is important that we conduct our business so as to continue to earn a fair return to our investors, we also have other responsibilities.

We have the finest fuel in the world to deliver to the great markets of the nation. Those markets are constantly increasing. This puts heavier burdens of responsibility on those who serve them. I have tried, in this brief article, to point out a few of the ways in which our industry is preparing to meet the problems and demands of the future.

Does Economic Climate Affect Judicial Expertise?

Whatever became of the "era of independence" for the regulatory commissions—the presumption by the courts of regulatory "expertise"? Recent court decisions indicating closer judicial supervision of the work of the regulatory bodies have naturally raised such questions. This author believes the explanation might lie in the background of economic climate in which the decisions are rendered.

By the Honorable William R. Connole*

Amidst the heavy drapes and ornate decorations of one of the Waldorf-Astoria's principal meeting rooms, several hundred lawyers and utility executives met this spring to discuss current natural gas regulatory problems. As it turned out, nearly every speaker on the program had something to say about two decisions which had been handed down by the United States Supreme Court only a short time before.

What accounted for this intense interest? What had the court said there which so upset and perplexed this group? Some had even observed that never in the course of regulation had so few caused so much trouble for so many by so few words. For the Mobile and Sierra decisions[1] had succeeded in overturning some fairly universally accepted ideas about the primacy of the regulatory body in the field of rate regulation.

Apart from the decisions themselves, however (and they seem to have stayed down better than most expected they would, as the regulatory bodies began the slow, but inevitable, process of ingesting the tasteless mass), there was a farther reaching significance to them. For they came rather close on the heels of the District of Columbia circuit court's decision

*Member, Federal Power Commission. For additional personal note, see "Pages with the Editors."

[1] United Gas Pipe Line Co. *v.* Mobile Gas Service Corp. (1956) 350 US 332, 12 PUR3d 112, and Federal Power Commission *v.* Sierra Pacific Power Co. (1956) 350 US 348, 12 PUR3d 122.

on reviewing the Panhandle rate order of the Federal Power Commission.[2] In each of these cases the judicial tribunal, on petition for review, had *disagreed* with the commission. Much more significantly, however, each case represented new high-water marks where judicial opinion previously had not dampened the certainty of regulatory convictions.

WHICH leads to the interesting and far from academic query whether these cases may represent a new chapter in the familiar history of commission *versus* courts. Is there any permanent significance, any trend, to be found here? If so, where is it going and what are its courses? Or do these cases represent isolated examples, hard cases which make bad law, as some contend?

By no means the answer to the questions, but possibly of some help is a consideration of the context in which the courts and commissions are now deciding cases and proceedings before them. Whether or not the U. S. Supreme Court watches the election returns, as the barbershop lawyers say it, or whether the law is a living and growing organism constantly adjusting itself to its environment, as the more sophisticated would argue, there seems little doubt that a decision yesterday on some types of questions has no built-in certainty of surviving intact through generations to come. To determine if judicial attitudes toward commission decisions vary in such fashion, attention can profitably be given to some of the factors which logically might be expected to affect them.

Since regulatory agencies are dealing chiefly with natural monopolies and their effects on, and relations with, those who buy their services or products and those who supply the capital resources for them, the most logical place to search for causes outside of the merits of the particular proceeding under review is in the factors affecting those two relationships. And sure enough, an exploration of these areas will not disappoint us.

LOOK first at the three governmental divisions which are involved in the regulatory process. First there is the legislature, next, its creature or long right arm, the regulatory agency, and finally the judiciary. Considering the executive functions which the administrative agency performs, the regulatory process thus impinges on all three branches of government recognized in this country.

Because the legislature is closest to, in fact made up of, the people, it is natural to expect it would react first to any influences which acutely affect the people as a whole. Reality in this case follows logic.

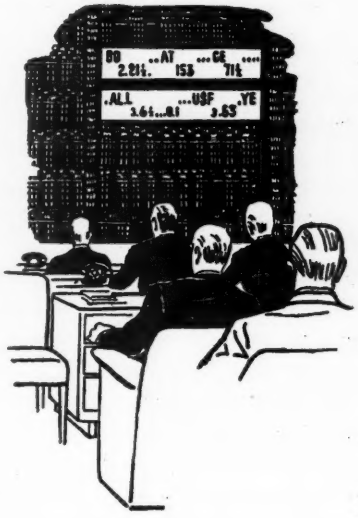
During periods when customers or consumers are most acutely aware of the value of a dollar, their interest in prices is keenest. Moreover, they are most sensitive to the profits, real or imagined, of those with whom they do business. Accordingly, during those periods, restrictive legislation is common.

For example, the agitation leading to the enactment of the Interstate Commerce Act and the creation of the first of the federal regulatory agencies is directly traceable to the panic of 1873 triggered by the collapse of the great banking house of Jay Cooke & Company. The failures of so many railroads, banks, and industries during the following years brought severe

[2] City of Detroit *v.* Federal Power Commission (1955) 11 PUR3d 113, 230 F2d 810.

Impact of Economic Stress

"EACH down turn of the business cycle, if it lasts long enough, brings with it agitation for legislative relief against the segment of the economy popularly believed to be responsible. And this development is likely even if the reasoning behind the belief is vague and uncertain. Recall, for example, the legislative investigations following the 1929 crash. People everywhere blamed the operation of the securities trading processes and the markets in which the trading was done. So, regulation seemed to be called for to prevent recurrence of the catastrophe."



hardship to western farmers. The Granger movement, aimed particularly at the high-handed railroads of the day on which the farmers depended so completely, began in response to irresistible public demand.

The familiar story of the bold new experiments with regulation, tried first in the states, and, after meeting early success, found unconstitutional in Wabash, St. L. & P. R. Co. *v.* Illinois (US Sup Ct 1886) 118 US 557, and culminating in the federal Cullom Act of 1887, needs no retelling. Its significance for our purposes, however, is the immediate and direct casual relation which the story reveals between the severe economic reverses of the period and the remedial regulatory legislation the people caused to be enacted in an effort to correct abuses that were felt to be responsible for the sad plight of so many users of the only real utility (as we know of it) of that era—the railroads.

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People everywhere blamed the operation of the securities trading processes and the markets in which the trading was done. So, regulation seemed to be called for to prevent recurrence of the catastrophe. And the several acts administered by the Securities and Exchange Commission were the natural result.

This is certainly not to say the legislation which has been the result of popular dissatisfaction with one segment of the economy or another has been unnecessary. Nothing could be farther from the truth.

In each instance, there was a real evil which had come to pervade the particular industry so completely that only a sweeping act by the people themselves, through their elected representatives, could remedy it. The industries affected seemed unable to clean their own houses.

The important point here, however, is that these evils were recognized and a cure for them demanded and found, only during periods of economic adversity. Historically it has seemed difficult for the government to arouse intense interest in restrictive legislation effecting a degree of governmental control over an industry, in periods of prosperity.

And, just as the clamor for more and closer regulation has been answered in the legislatures by appropriately more restrictive legislation, the popular demand that commissions deal more severely with companies has frequently been met with sharpening of the regulatory pencil.

ONE cause, of course, lies in the natural vigor and enthusiasm with which any newly organized agency approaches its task. If the organic act creating the agency is effective and sound this vigor leads usually to firm and quite positive actions by the agency. As the cause which the particular act championed seems won, or nearly so, however, the enthusiasm sometimes wanes. Or if the agency is successful in curing the ills which it was designed to treat and there is less on which to concentrate popular indignation, the agency tends to mellow somewhat in its collective approach and the decisions it renders and policies it adopts vary accordingly.

Similarly, it is an observable phenomenon that in periods when money, goods, and services are all more plentiful and well distributed, regulatory commissions become less inclined to exact the last penny from the rate case.

Stating this experience in a pseudo-scientific fashion might even be attempted at this point. Can it be said that intensity of and demand for utility regulation varies in inverse proportion to the level of general prosperity? Certainly the history of the actions of legislatures seems to bear this out. And there is no better evidence of increased regulatory activity during periods of national economic adversity than the vigorous and forthright manner in which the Federal Power Commission administered the then new Natural Gas Act and the Federal Power Act in the late nineteen thirties. Even casual reading of the reported cases during the years of the last great depression will confirm this.

AS might be expected, the increase in regulatory activity during certain periods, brings about an increase in opportunities for judicial review. If the decisions of commissions are more restrictive or tend to favor consumers it is logical that more companies will bring appeals during such periods. And, conversely, when regulation tends less to restrict earnings of utilities during periods of relative prosperity there are fewer appeals since ratepayers are seldom well enough organized and courts have difficulty in finding that a ratepayer, being unable to show confiscation, is properly before the judicial body at all.

Despite this factor, however, enough litigation has been decided during both ups and downs, peaks and valleys of business activity that ample examples are available in all phases. And some interesting relations exist, particularly between the state

of the economy and the extent to which courts have attempted to substitute their judgment for that of the regulator, to use judicial instead of administrative expertise.

Periods of Judicial Emphasis in Regulation

While far from documented and by no means invulnerable to logical attack, a reasonably defensible argument is possible that judicial tribunals seem more likely to exercise their informed judgment during good times than during bad.

Take just one example, although an important one; the rise and fall of the present fair value concept and its replacement by the original cost concept.

Ever since the courts were persuaded in 1894 (Reagan *v.* Farmers Loan & Trust Co. 154 US 362) that the constitutional protection against confiscation of property was available to utilities if a rate schedule returned less than a fair return, litigation has been frequent on the question of how to measure the value of the property on which this return was to be based. Understandably, the utilities contended for as high a rate base as possible.

In the well-known McCardle *v.* Indianapolis Water Co. Case (272 US 400, PUR1927A 15) the U. S. Supreme Court had before it a finding by the district court that the fair value of the company's property was greater than allowed by the commission.

In its decision, reached during the post-World War I prosperity of 1925-26, the Supreme Court accepted this striking interference by a judicial tribunal with the commission's legislative, rate-making function, rejected the commission's valuation, and specified in some detail (272 US 400, 408) what future prices should be considered by the commission.

Then in 1933, a few years but millions of deflated dollars later, the Supreme Court, in Los Angeles Gas & Electric Corp. *v.* California R. Commission (289 US 287, PUR1933C 229) specifically recognized the distinction between the function of courts and commissions in the regulation of utility rates and accepted the "historical cost" rate base found by the California commission. Mr. Chief Justice Hughes, in the majority opinion presaging the many like it to come, stated (289 US 287, 304), "The legislative discretion implied in the rate-making power necessarily extends to the entire legislative process, embracing the method used in reaching the legislative determination as well as that determination itself."

The echoes of that language reverberate throughout the familiar decisions which followed in the Natural Gas Pipeline Company of America and the Hope Natural Gas cases.[3] Although decided during the war years they belong essentially to the period of the thirties. Throughout that period judicial interference with commission expertise was infrequent and unimportant.

Thus the recent decisions in the Mobile and Sierra Pacific cases as well as the Panhandle appeal are consistent with the theory here suggested. In this period of unprecedented levels of business activity the courts seem to be taking it upon themselves to peck away at the pronouncements of the courts made in the thirties and be-

[3] Federal Power Commission *v.* Natural Gas Pipeline Co. of America (1942) 315 US 575, 42 PUR NS 129; Federal Power Commission *v.* Hope Nat. Gas Co. (1944) 320 US 591, 51 PUR NS 193.

fore. Is commission expertise as sacred a cow now as it was thought to be a few years ago? Even City of Pittsburgh *v.* Federal Power Commission (1956) 13 PUR3d 145, although a pipeline certificate proceeding appeal, seems to imply that courts will be looking behind the legislative determinations of the commissions and reaching their own conclusions. If there is any substance to this thesis, it should move commissions and companies alike to take a more cautious position.

THE problem explored above is essentially, and in a very broad brush way, summed up in this question: How have the traditional branches of our constitutional government carried out their respective responsibilities for utility regulation in relation to each other?

One oversimplified conclusion from the foregoing might be that, during or immediately following periods of economic stress, the legislative branch (by statutory amendment) and its creatures, the commissions (by regulatory decisions), have become most diligent in setting up or adjusting the controls to meet changing regulatory requirements in the public interest. Under such circumstances, there has been observed a tendency on the part of the judicial branch to give the commissions a relatively free hand in working out their own solutions and interpretations of statutory standards and legislative intent. During such time, court decisions have emphasized recognition of so-called expertise of the commissions.

In periods of economic expansion, however, when there may seem to be less need for new statutory restrictions or constant adjustment of controls on utility operations, the courts may be inclined to assume the rôle of closer supervision, to check the conformity of regulatory action with established statutory standards and interpretations of the intent of the legislative branch in the public interest. The over-all economic climate may thus serve as a backdrop for analyzing the changing pattern of regulatory decisions over a long range of industrial performance. This is, of course, simply a broad hypothesis inspired by what might seem to be a somewhat cynical question asked by the observer of today's trend of decisions in the light of the Hope Case and other decisions of more than a decade ago. The question is: "Whatever became of the expertise of the regulatory commissions?"

BEARING *out the suggestion in the foregoing article, that periods of economic stress give rise to activity in legislation affecting public utility regulation, is the record of the extraordinary number of regulatory laws and amendments registered during the period of 1930 to 1940. This was the decade which mostly reflected the economic depression of the early thirties. No less than two dozen state regulatory laws were revised or amended in some major degree during this period. Statutes in New York and Pennsylvania were completely overhauled. Three new federal regulatory commissions (FCC, FPC (on a full-time basis), and the SEC) were set up in business under statutes for interstate regulation of utilities: Federal Power Act, Federal Communications Act, the original Natural Gas Act, and the Holding Company Act. The Interstate Commerce Commission Act was revised. Motor carriers were brought under federal regulation.*

For Your Information

Does the management of a modern gas utility serving a large American metropolis need a philosophy with respect to human relationship? If so, what would that philosophy be?

By JAMES F. OATES, JR.*
CHAIRMAN OF THE BOARD, THE PEOPLES GAS LIGHT AND COKE COMPANY

THE Peoples Gas Light and Coke Company is an operating gas utility in the city of Chicago. It is also the parent company of an integrated gas system which consists of corporate units primarily engaged in the production, transmission, storage, distribution, and sale of natural gas.

Peoples Gas in its corporate capacity serves approximately one million Chicago customers—residential, commercial, and industrial. This service furnishes the sole utility gas supply for a population of nearly three and three-quarter million people and is performed by over 5,000 employees.

As is true in many public service organizations, the people of Peoples Gas have a special sense of responsibility since the daily human needs, as well as the health and welfare, of a vast population depend upon the efficient and reliable performance of their work assignments.

This feeling of responsibility has necessarily served to foster pride in our work and respect for each other.

A close, co-operative spirit is traditional among this group. Much of their work is performed in complete anonymity, but their loyalty to the work they do in the public interest has produced a creditable record of teamwork by what our veteran employees like to call, "The Gas House Gang."

THERE have been few "stars," as such, among the many thousands whose hard work and ingenuity have, by improvising and conquering untold technical difficulties, built, maintained, and expanded Chicago's gas service. There are, however, many unsung heroes, including men who respond in the dead of night under severe weather conditions to protect the public safety by repairing a gas leak under conditions of personal jeopardy, and men

*For additional personal note, see "Pages with the Editors."

who, on the occasion of a fire or flash flood from heavy rains, must work long hours in adverse conditions cutting off gas service and later restoring it after the emergency has passed. To these men the entire community owes a great debt and this statement would be incomplete without recording this sincere tribute.

The result has been that Chicago has had unfailing gas service for 105 years and this through times of panic as well as prosperity, riot, and other serious dislocations, war and peace, and even during the great fire of 1871 and its aftermath.

THE ranks of our employees now are studded with hundreds of professionally trained men—among them engineers, chemists, physicists, geologists, and accountants. But an old verse, bearing the apt title "The Gas House Terrier," is just as expressive today of the gas worker's fierce pride in his job as it was more than a half-century ago. Let me quote a few of its lines:

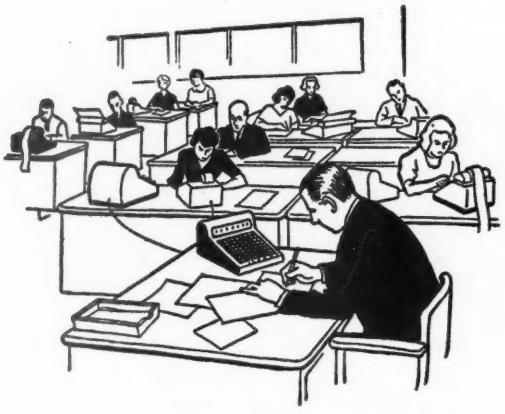
He was a grimy Terrier from the gas-house down beyant,
Of chemistry and algebra his knowledge true was scant;
But he'd a horny fist and an honest face and the grit of a brindled pup,
He didn't go much on photometry, but he kept his holder up.
As we welcome the logarithmic boy, with his tubes and his chemical stuff,
Let us not forget the Terrier lad, who broke the way when the way was rough.
Here's to his job, wherever he goes, and may never a fate be sweeter
Than his, when death cuts off his gas, and Gabriel takes his meter.

Perhaps, it is because our business consists in substance of the performance of a service, or, maybe because we are so constantly required to satisfy, competitively, high standards of public acceptability; in any event, the fact is that we are unusually conscious that our business properties would have nothing but a salvage value in the absence of an effective and reliable organization. We believe that such an organization can only be created and maintained if management tirelessly pursues the elusive goal of sound human relations. We know that the individual human being is the indispensable ingredient of business. We have learned the lesson that accomplishments are made by people, and not by things.

HUMAN relations are, of course, good or bad, successful or unsuccessful, depending entirely upon the particular individuals involved, their health, their intelligence, their character, their aspirations, their sins, their strengths, and their weaknesses. Obviously there is no sure-shot formula, no slide-rule technique which will unlock the human heart.

The important and highly practical questions to ask are these: What is the spirit of your institution? What is the philosophy of the management in reference to human relationships? Because it is this philosophy which creates the atmosphere. If there be a technique to know and solve the problems of human relationships, it is the wholehearted acceptance of the necessity of developing a philosophy and the recognition that the application of that philosophy is a never-ending, continuous, ceaseless job.

May I be bold enough to suggest a starting place in the development of a business



Employer-employee Communications

"It is axiomatic that the need to communicate is a fundamental human characteristic. No business can fully prosper if barriers to the natural process of communication are permitted to exist. Our employee group at Peoples Gas numbers in excess of 5,000 individuals, and those in our associated pipeline companies aggregate another 2,500. It is a planned, important, and keenly anticipated part of my job throughout the year to visit with hundreds of those individuals at work throughout our system. I simply believe that to sustain a meaningful communication system predicated on the use of any of the commonly accepted methods, it is first of all necessary that all of us spend some time in seeking an insight as to those who work with us."

philosophy? I believe that the starting place is in your own individual concept of the value of man. I also believe that we must never forget that a man is a being with dignity and that he possesses the sanctity of a human personality.

It is therefore submitted that at all levels of management each individual supervisor and official must seek to develop a sincere respect for each individual employee as a fellow human being. From such respect there will inevitably spring a sense of confidence which moves in both directions. From that respect it will also follow that management will wish to establish and perfect the means of communication to and from the employees.

It is axiomatic that the need to communicate is a fundamental human characteristic. No business can fully prosper if barriers to the natural process of communication are permitted to exist.

Our employee group at Peoples Gas numbers in excess of 5,000 individuals, and those in our associated pipeline com-

panies aggregate another 2,500. It is a planned, important, and keenly anticipated part of my job throughout the year to visit with hundreds of those individuals at work throughout our system. I simply believe that to sustain a meaningful communication system predicated on the use of any of the commonly accepted methods, it is first of all necessary that all of us spend some time in seeking an insight as to those who work with us. I know of no practical substitute for a face-to-face relationship. I cannot overemphasize the solid basis for two-way communications that begins when Superintendent Jones knows firsthand that Special Serviceman Smith is a man with a drill press in his basement and two stalwarts in college. Conversely, Smith also has something when he finds that Jones is a fly-rod man, a real menace to brook trout, and a proud grandfather as well. Once we have developed and nurtured this kind of relationship, we have a good start towards being able to assess and understand the human desires, feelings, and attitudes that surround us. This is, in my judgment, the essential cement in a foundation for effective communication.

As in other business operations, the successful conduct of a comprehensive communication system has become a complex and detailed affair. There are an aggregate of 40 media regularly used in Peoples Gas for employee communication, which include the general classifications of personal contacts; printed and written materials; suggestion system; management group conferences; employee group conferences; formal training and development programs; and other similar programs and activities. I must also confess that, in addition, we do have a busy and far-reaching informal communication network, as well as the time-honored and active grapevine which adorns our particular vineyard.

Of particular importance is the objective of doing our best to keep our employees fairly informed on all important factual events and policy determinations. We believe that no employee can be an effective member of the team unless he knows the score. He can only realize his best potential as an employee on the job and as a representative of the company off the job, if he is kept fully advised on all significant and vital company problems and programs.

The timing of informational releases is a problem that necessarily engages our conscientious attention. From a communication point of view, there is nothing more dull and uninspiring, *or useless,* than important company information which is delayed to an extent where it is representative of nothing but historical documentation. There are, of necessity, those times when policy matters are in the stage of conception and planning. This is not a time for general communication. However, when a policy matter is decided, we believe it to be instantly communicable.

We have complete faith in a full use of communication methods which have been in existence and tested through time. For example, our employee magazine, *Gas News,* is a monthly publication of many years' standing and has been devoted to publicizing departmental functions, product developments, the individual and group accomplishments of people in our organization, and other items of similar character. I have been a regular monthly contributor to the "Our Company" column in that magazine for some

years. Through that medium we have probed such varied subjects as the Herscher underground storage project, the romance and mechanics of off-shore drilling in the Gulf coast, and the precise science of gas air conditioning. We outline our future hopes and review our past accomplishments. I have been told by independent analysts that the column is widely read and that the employees find it to be of interest and value. This is an encouraging report. I shall do my best in this way to share with all of our associates the serious problems, the big ventures, and the good news.

Our employees all receive the same annual reports and quarterly statements that stockholders receive, as well as full reports of the business transacted and the remarks made at our annual stockholders' meetings. Advance copies of company information for release to newspapers are issued to employees prior to publication in the daily press.

THE gas industry now ranks as the sixth largest on a national scale, with glowing prospects of substantial progress in the future. There have been times, and there will be times, when the growing pains of an expanding economy seem to require all of our energies and efforts be directed towards the technical and financial administration of the business. However, no one of us can forsake the broad view that we are essentially dependent on others to translate our leadership into productive action. The only means for this translation lies in effective communication.

May I suggest that it is necessary that all of us who are managers in the gas business be constantly aware of the fact that one of our primary responsibilities is to impart and receive information related to every phase of the job that we have. Beyond that it is vital that we have a driving desire to effectively do this job, and a real concern that all of the story gets across to those who may be affected. Perfunctory announcements (no matter how frequent) and the cold recital of figures (no matter how significant) do not at all assure a comprehensive understanding on the part of recipients. Partial half-hearted communication, or none at all, guarantees a complete lack of understanding of a company's purpose or reason for existence. Finally, let us never forget that like so much else in life, and certainly in business, success in communications is inseparable from a continuing desire to improve them.

Therefore we must conclude, as we started, in recognizing that these matters of understanding human beings (*and being understood by them*) are complex, profound, and, in many cases, beyond accurate comprehension.

THE most practical and realistic advice that we can give each other is to plead for recognition of the truth that since the philosophy of sound human relationships is a matter of the spirit, it is an ideal and can never be fully achieved on this earth. Our success in working effectively and joyously with our fellow human beings will be measured by our persistence in courageously seeking the achievement of the ideal and to the extent permitted by our inadequate mortal strength seeking to avoid the pitfalls and temptations of frustrating cynicism. It is my experience that progress can be made and that the effort itself brings rewarding joy and satisfaction.

Some Comments on Gas Supply

What steps should be taken to insure the maximum supply of gas at the lowest cost to the consumers consonant with fair and equitable treatment for producers, pipelines, and distributors? This veteran executive, drawing on a rich background of managerial experience, makes some practical suggestions for erasing trouble spots now bothering those charged with the responsibility of gas supply.

By TOM P. WALKER*
PRESIDENT, TRANSCONTINENTAL GAS PIPE LINE CORPORATION

WITHIN the four corners of the natural gas business, the producer at the moment holds the center of attention. Perhaps if the Supreme Court had not made a public character of him when it handed down its decision in the Phillips Case on June 7, 1954,[1] his place in the picture would have been characterized only by the rough-and-tumble interplay of business and the public may have known little of him. And, being the individual he is, he could jolly well take care of himself in such an atmosphere. Now, thrust into a new world of restraint and regulation, with no clear patterns to guide him, he is bewildered and even a bit resentful. His place in the industry is vital. Until some definite guideposts are set out for his guidance, his ability and willingness to perform are in doubt. At the moment, he is standing by waiting for some help. A few are willing to sell undedicated reserves, but most have taken their gas off the market, thus causing an artificial shortage of new supplies.

History tells of the bamboo pipelines which the Chinese laid centuries ago to transport natural gas to their salt evaporators, but it was not until the third decade of the twentieth century that truly large markets were opened up for the

*For additional personal note, see "Pages with the Editors."

[1] Phillips Petroleum Co. *v.* State of Wisconsin et al. (1954) 3 PUR3d 129.

tremendous reservoir of Btu's which mid-continent and Gulf coast oil operators tolerated only as a nuisance. Long-distance transmission of gas, interrupted by the demands for materiel during the second World War, did not come into full operation until the late forties. Then the pipelines brought a new dimension to both the production and distribution of natural gas. They afforded new and substantial earnings from a grossly wasted natural resource. They transformed hundreds of distributor companies with little or no earnings into virile dividend-paying enterprises.

The particular factor which made it all possible was a bold, new concept of finance predicated on the willingness of producers to commit their reserves for sale over a long period of time and of distributors to make similar long-term purchase contracts. Venturesome equity money teamed up with enlightened insurance funds to bring about a new gas industry which in a few short years has attained a high place in our national economy.

THIS new financial pattern depends on long-term purchase and sale contracts on either end of the transmission line, with full amortization of debt and heavy payoffs on all but the primary equity capital. Regulation of the pipeline to a featheredge leaves small room for divergence from the pattern. Only when the pipeline recovers its total costs, including a reasonable return on its investment, can it continue to meet the demands of growing markets and expand to new areas eager for service.

Except in favored markets which got their first gas from the Appalachian area, the whole industry—producer, pipeliner, and distributor alike—is suffering growing pains. The producer's position is completely changed from the day when, in his search for oil, he found the new nuisance which his conscience, and later the law, told him he could not waste but for which there was no market. The sensitively financed and rigidly regulated pipeline is new, of course, and still in some respects untried. But in no area was the transition more radical than that of distribution. These local gas companies also operate under strict regulation. Their operations are grounded in tradition based on practices built up over a hundred years. The substitution of a supply source hundreds of miles distant for the cosy, easily controlled but withal expensive manufacturing facilities close at hand, which now could be used only infrequently as standby, was indeed a major revolution.

IN the beginning, the new fuel seemed much cheaper. Because its source was many tenuous pipeline miles distant, it was generally believed that idled manufacturing facilities must be maintained almost completely intact. Thus, load-factor problems, inherent both in the retained facilities and in the pipeline itself, were multiplied. To achieve long-hour use, in the beginning much off-peak gas had to be sold in competition with other available fuels. This requirement accentuated the importance of the cheaper rate for this off-peak or interruptible use as contrasted with that for domestic or commercial purposes. It is at this low rate level that natural gas must meet the competition of other fuels. Furthermore, it is this necessarily low rate level which is most sensitive to changes in field prices. Hence the price of gas at the wellhead is an important

factor in the successful operations of the pipeline and the distributor.

To meet a mounting demand for the new preferred fuel, pipelines offered higher and ever-higher prices for gas in the field. One deal, seeking some protection for the producer against inflation and the uncertainties involved in fixing a price for a full twenty years, introduced the idea of a favored nations clause. Producers, always quick on the uptake, grasped at the innovation eagerly and forthwith, as demand for new gas reserves pressed more heavily on supplies, devised new and expanded versions. As time passed, these commenced to trigger field prices, and the distributor found his planning upset by escalations he could not reduce to manageable terms. This capricious method of pricing tossed a new disturbing element into his already difficult adjustment. Down the road a clash became obvious between prices of gas in the field and a cheap rate in the market essential to maintain a high-load factor. It was at this point that the Phillips decision and the resulting FPC regulation of producers' prices offered a way out for the distributor, and the issue was joined.

Out of it all, this seems clear: If the distributor is to continue to be the salesman for the producer, he must know within reasonable limits what his gas will cost for sufficient time in the future to permit orderly planning. Few distributors advocate regulation of the producer to bring this about, but they must have some answer to that question before they will carry on with confidence and enthusiasm. On the other hand, if the producer is to exert his skills and his resources in the search for new reserves he must be well rewarded during the full term of his commitment.

Before moving on to the producer and the question of gas supply, we should complete the square we have chosen to represent the entire gas industry. In this corner we find the regulatory agencies. The local pattern for regulating distributors is well established. Since the advent of natural gas, however, control over a major portion of the public service commissions' responsibility has passed to others. Where they previously set the price for manufactured gas as a fixed return on a cost of facilities, they now must accept a well-head price determined by the Federal Power Commission. Many

¶ "Within *the four corners of the natural gas business, the producer at the moment holds the center of attention. Perhaps if the Supreme Court had not made a public character of him when it handed down its decision in the Phillips Case on June 7, 1954, his place in the picture would have been characterized only by the rough-and-tumble interplay of business and the public may have known little of him. And, being the individual he is, he could jolly well take care of himself in such an atmosphere. Now, thrust into a new world of restraint and regulation, with no clear patterns to guide him, he is bewildered and even a bit resentful. His place in the industry is vital.*"

commissions permit simple procedures for passing on to the ultimate consumer any reasonable increases allowed the pipeline by the FPC. As the price for such a concession, they require companies under their jurisdiction to contest every increase requested by a producer or a pipeline. As a result, the FPC work load is multiplied by distributor company and commission interventions seeking to limit such increases. Some, but not all, of these state commissions advocate strict cost-of-service regulation of the producer and pursue the point not only before the FPC, but also in the political arena. As a matter of courtesy and perhaps of more substantial right, they are accorded every facility to participate in these rate proceedings.

After some eighteen years' experience with the Natural Gas Act, the FPC has developed rules and regulations for certification of pipeline facilities and rate making which are well understood and workable. The upsurge of well-head prices, triggered by favored nations clauses, and the sudden dumping in its lap of producer regulation have opened up a whole new area of problems for the FPC. Now faced by these added thousands of unwilling and unhappy subjects, whom it disclaimed on numerous occasions, and with no guideposts or precedents, its situation is truly difficult. The Natural Gas Act prescribes certain rules and procedures which cannot be applied to the production of natural gas. The commission is doing its best to find some answers in this frustrating situation. Only a clear definition from Congress can release the industry from the uncertainties and confusion that now threaten to strangle its future progress.

At the moment, the producer has not yet fully recovered from the state of shock which the Supreme Court's decision of June 7, 1954, visited upon him. Since its earliest days, the petroleum industry has been daring—an outstanding example of the contributions to the public welfare which can be achieved under America's free enterprise system. It has taken chances which paid handsomely to those who pursued the business with intelligence and energy. Its success is due largely to the fact that its only restraint was the limitations of the willingness to venture. When suddenly the court order decreed that this natural gas end of the petroleum business, which was just beginning to flower as an important money-maker, was to be regulated just like a public utility, the producer was dumfounded. The only ready answer he could think of was, "They can't do this to me."

In spite of the fact that the Natural Gas Act specifically exempted the production and gathering of gas from FPC regulation, the producer suspected that some loose connection in the law might be revealed. Through the Kerr Bill, passed and vetoed before the Phillips decision, and the more recent Harris-Fulbright Bill, he sought to have the defect corrected. The Supreme Court decision confirmed his fears and redoubled his efforts to have Congress correct the deficiency. The fight over the Harris-Fulbright Bill is too recent to require any review here. Suffice it to say, the gas producer used every means at his command to persuade Congress to relieve him of regulation. In this he succeeded, but the President, while approving the bill's objectives, found some of the means used to get it passed just far enough off the reservation to

New Gas Problems for the FPC

"AFTER *some eighteen years' experience with the Natural Gas Act, the FPC has developed rules and regulations for certification of pipeline facilities and rate making which are well understood and workable. The upsurge of well-head prices, triggered by favored nations clauses, and the sudden dumping in its lap of producer regulation have opened up a whole new area of problems for the FPC. Now faced by these added thousands of unwilling and unhappy subjects, whom it disclaimed on numerous occasions, and with no guideposts or precedents, its situation is truly difficult.*"

justify his veto. Many distributors and state utility commissions applauded the President's action. They had worked as earnestly to defeat the bill.

It is questionable whether the Harris-Fulbright Bill would have afforded, within the four corners of the gas industry, a peaceful settlement of its problems. The distributor was not satisfied that it protected him against runaway gas prices at the wellhead. The pipeline was apprehensive because under its gas purchase contracts it might have to pay the producer a higher price than the FPC would allow it to pass on to its market customers. The FPC had no clear-cut basis upon which it could regulate either the pipeline or the producer. The producer finally, in certain contract relations with the pipelines, and particularly as to favored nations clauses, was definitely subject to FPC control. With all these features inviting contention, the law could easily have been in the courts for ten years before congressional intent could be evaluated. Perhaps that hope is too optimistic. The Natural Gas Act is still being interpreted by the courts after eighteen years of experience under it.

No one can contend with much justice that the business of producing nat-

ural gas lends itself to the type of regulation set up in the Natural Gas Act. The act's certificate requirements cannot be made to apply even under the widest stretch of the imagination. The traditional concept of price as a rate of return on invested capital is urged by many who contend that the act and certain court interpretations make the application of these provisions mandatory on the FPC. Such a formula is highly impractical. Thus, we start with an almost impossible situation to reconcile.

THERE are almost as many different kinds of producers as there are producers. Even the major oil companies have widely varying practices as to exploration and development. Most have expert technical staffs searching continually for new geophysical structures. Such operations are fairly well standardized. Some have large, some small, appropriations for exploration. Others depend on independent operators to find structures later to be purchased for development. The very nature of the business makes for a wide diversity of policies, which fact may account for the over-all success of the petroleum business.

One interesting type of producer who contributes a substantial number of new discoveries is the small independent striving for the big kill. Some have become fabulously wealthy; some more than several times have dissipated their first success on later losing ventures. There is an old saying that much more money has gone into the ground than ever came out. This independent is a rough-and-ready fellow always alert for a deal. It is especially difficult to picture him pursuing his chosen field with enthusiasm and daring if every act must be approved by some federal commission far removed in distance and state of mind from the instant decisions he must make from day to day.

A SERIOUS effect of the Supreme Court's decision is the removal from the market place of recent new discoveries of natural gas. The producer reasons that if he makes a long-term contract for the sale of his gas, he has no assurance that the negotiated price will be approved or continued throughout its term. Unless he must have income, unless some terms of his drilling leases require immediate production, or unless he is being drained by some other producer, he is holding his gas until the situation becomes more clear. If he has to sell, he will seek a market which will not subject him to FPC jurisdiction. Such markets include intrastate sales or sales to an out-of-the-state purchaser who buys the gas for his sole use and not for resale. Now, any sale to an interstate pipeline requires that he must secure a certificate to make the sale and submit to the rate provisions of the Natural Gas Act. Major companies which can afford to withhold their newly discovered gas are doing so and pipelines are finding it increasingly difficult to find new supplies to take care of their own expanding markets except at prices which the producer calculates will compensate him for his entrapment. At the moment, producers are building great hopes around the prospect of new industries coming to the gas-producing areas. Louisiana interests are making a drive for such business, offering tax-free sites, rights of eminent domain for pipelines, and other incentives to use local resources to make more jobs. Whether or not such a program is realistic is open to question. Much cheaper natural gas has

been available in the Gulf coast area for at least thirty years and so far the local demand has not, in any measure, equaled the supplies offered. True, there has been a great development in chemical plants and other large users of natural gas; but their growth would have to step up considerably to absorb all the new reserves which promise to be found.

As an interesting side light, during a recent session of the Louisiana legislature, an administration bill would have increased the gathering tax on natural gas from one to three and one-half cents per Mcf. Only a constitutional requirement of a two-thirds majority defeated the measure. One of the candidates for nomination as governor in the Democratic primary runoff in Texas proposes to raise money for many social reforms by taxing natural gas sold to pipelines. Some consideration is also being given by oil and gas regulatory commissions in both Texas and Louisiana to a system of proration which could operate to restrict the production of the older lower-priced fields. These activities demonstrate an effort to assure for the gas-producing states a larger share of the consumer's dollar, which they fear might be denied them by FPC price control.

Another producer problem stems from the fact that both the pipeline and the distributor must have long-term contracts to finance their future requirements. The adoption of twenty years as the accepted term created a serious innovation in the pricing of a natural resource, particularly now that inflation is taking such a heavy toll on fixed prices made years ago. Lately the producer has refused to face the unseen future without being able to redo his deal in the light of changing conditions. The favored nations clause was his answer to that problem. So much has already been written and said on this subject that we need not press the point further. But in order for the distributor to plan his future operations, escalations in producer prices must be determinable well ahead of time, and the maximum price must match up to that of competitive fuels. When this particular dilemma is resolved by an amendment to the Natural Gas Act, the natural gas business will have been substantially put back on the track.

During the past eleven years, when systematic estimates of natural gas reserves have been accumulated by the AGA, the progress in the discovery of gas has been notable. Each year more gas was

¶ "A FACTOR *of great significance to the future of gas reserves is the increasing depth to which wells must be drilled to find new productive sands. The incremental cost per foot rises rapidly as wells go deeper. Early wells in the Appalachian area were relatively shallow as compared with depths which must now be explored to find new sources of gas. A 5,000-foot well in 1953 cost something under $10 per foot to drill. Wells of more than 15,000 feet are now common. Their cost is four times greater per foot.*"

added than was produced, so that proved reserves have increased from about 148 trillion cubic feet in 1945 to something over 223 trillion cubic feet in 1955. Some of these discoveries were new fields and new pools in old fields, but the larger part represented extensions and revisions in old fields. In spite of the fact that the total gas reserves each year have increased, the number of years of available supply as related to the production during these years has decreased from thirty-two and one-half years to something over twenty-two years. With one exception (1954), each year more exploratory wells were drilled than during the previous year. Not only the number of wells but the footage drilled increased. It is interesting to note that throughout this 11-year period, an average of about 80 per cent of the total wells drilled were dry holes, and in only 3½ per cent was gas discovered. The total drilling of exploratory and development wells shows commendable improvement, but, in the last analysis, the constant addition of new and previously unknown reserves will alone determine the adequacy of future gas reserves. Here, of course, is where the real risk lies. The rewards must be attractive, and certainly a possible 6 per cent return on an investment will not generate the necessary enthusiasm to get the job done.

A FACTOR of great significance to the future of gas reserves is the increasing depth to which wells must be drilled to find new productive sands. The incremental cost per foot rises rapidly as wells go deeper. Early wells in the Appalachian area were relatively shallow as compared with depths which must now be explored to find new sources of gas. A 5,000-foot well in 1953 cost something under $10 per foot to drill. Wells of more than 15,000 feet are now common. Their cost is four times greater per foot. This fact definitely deters the search for new supplies, and one can reach only one conclusion: The fundamental economics surrounding new gas supplies will dictate an increase in their price during the coming years.

RALPH E. DAVIS, the dean of gas reserve experts, recently made some interesting comments on the driving power behind the exploration for gas. He lists our tax structure as one of the important stimulants. More people are making big money. An individual who may pay out as much as 90 per cent of his incremental earnings in taxes has a ready incentive to risk his money in ventures where a lucky strike may transfer a high-bracket tax liability into a more manageable capital gain. Mr. Davis further says, "Another factor in the increase of drilling has been the substantial improvements in the technology and economics of exploration—better seismic methods—better methods of recognition of pays of oil or gas—better drilling equipment and techniques; the introduction of sand fracking, the wider use of secondary recovery methods, and last, but not least, better prices for oil and especially for gas."

During much of the rapid development of natural gas pipelines, he points out, the price of bituminous coal was increasing and the substitution of natural gas was attractive and feasible.

Now, other factors are entering the picture which tend to diminish what Mr. Davis terms the "power behind exploration for gas." In Louisiana, more recently

Impact of FPC Control on Gas Producers

"A THREAT of FPC regulation, especially with the possibility of a restricted return on a utility rate base formula, is another element which impels the producer to become more conservative. Even if he makes a contract which he considers satisfactory, he cannot be sure, sometimes for several months, whether or not the FPC will approve the price he has negotiated. Contracts are now being made at ever-mounting prices with the apparent reservation that the FPC will order a price in line with realities. If the producer is to persuade the ultimate consumer that the competition for the sale of gas is a sufficient guaranty that it will be reasonably priced, he can ill-afford to exact a contract which can be found out of line by the FPC."

the most fertile field for new discoveries, much of the land area has already been explored. More venturesome producers are going offshore where drilling in many feet of water cover is becoming more and more expensive. These prospects are still more promising at the moment than exploring Rocky Mountain and Arctic Circle areas which some day may have to furnish our oil and gas requirements. A threat of FPC regulation, especially with the possibility of a restricted return on a utility rate base formula, is another element which impels the producer to become more conservative. Even if he makes a contract which he considers satisfactory, he cannot be sure, sometimes for several months, whether or not the FPC will approve the price he has negotiated. Contracts are now being made at ever-mounting prices with the apparent reservation that the FPC will order a price in line with realities. If

the producer is to persuade the ultimate consumer that the competition for the sale of gas is a sufficient guaranty that it will be reasonably priced, he can ill-afford to exact a contract which can be found out of line by the FPC. There can be no better evidence of the need for regulation than this.

THE distributor is essentially the sales agent for the producer—the pipeline a transporter. Common practice requires the pipeline to negotiate for gas in the field on the best terms available. By their persistent participation in rate case proceedings before the FPC, distributors indicate in no uncertain terms that they do not approve some of the newer purchase agreements. In recent months especially, since the FPC has assumed jurisdiction over well-head prices, distributors have been intervening in all producer and pipeline proceedings. One way to restore confidence is for the distributor to purchase his gas directly from the producer, using the pipeline only in its natural place as a transporter. Such a program would materially simplify the life of the pipeliner.

Because (1) new gas reserves are much less accessible than they were ten years ago; (2) ever-deeper wells are drilled at higher incremental costs; and (3) the new regulatory atmosphere surrounds the producer's business with uncertainties, there is a definite threat that the producer will lose interest in exploring for new gas supplies. Best-informed estimates place large reserves in the offshore sections of Texas and Louisiana yet to be discovered. The petroleum industry will find these reserves if their enthusiasm can be maintained by proper incentives. But the price of gas in the field will be higher than the average price pipelines are now paying. The reason the present average is low is that its components are prices paid over the past ten years, ranging all the way from 5 cents per Mcf to 21 cents. Contracts are now being made in Louisiana at a starting price of 22½ cents. Each new large increment of gas requires a price in excess of the present average. Thus, the prospect is for the average to rise. In the meantime, some pipelines will effect savings in other costs of service which will soften rises in field prices when translated to the distributor level. What final level will result is impossible to forecast.

UNTIL four or five years ago, during the greatest expansion in pipeline capacity, gas was bought in a buyer's market. At the moment, there is a large unfilled demand for additional gas. Until Congress gives the FPC some clear directive on its responsibilities and the producer can negotiate with some confidence, the future is bound to be obscure. This much we can say: When the price runs head-on into the cost of competing fuels, then a plateau will have been reached. If this level is sufficiently attractive to justify the increased costs of exploration and development, there will be plenty of gas for a long time to come. If not, the gas will continue to repose in its hidden chambers where it has lain for multiple thousands of years. We know now that there are large gas reserves outside the continental limits of the United States. Canadian gas will soon be a definite competitive element, particularly in the Pacific Northwest and also into our New England via the proposed Trans-Canada pipeline. One company has contracted for substantial quantities of Mexican gas. These sources will

some day have an impact on the adequacy and price of gas in our markets.

Except for comparatively smaller areas, populationwise, the big markets of the country are already being served. New gas will be required during the coming years mainly to develop in depth the markets now being supplied. Thus, the frantic competition for new large supplies should ease. As this growth progresses, it seems reasonable to expect that uses which cause gas to compete in the market place with other fuels will be displaced by preferred uses for delicate heat treating and space heating, backed up by underground storage. Such uses of gas will command better rates and might justify the higher average prices necessary to encourage continuing development.

THE one great uncertainty still is the confused situation surrounding the regulation of the producer. The FPC frankly admits that it is at a loss to fix well-head prices under any formula which so far has been suggested. The producer is bewildered by this uncertainty. Congress must define his position clearly, and whatever responsibility for price fixing remains with the FPC must be spelled out in accurate detail. In his veto of the Harris-Fulbright Bill, the President stated that there is need for such legislation—that the fortunes of all elements of the business must be safeguarded in the public interest. The producer, the pipeliner, the distributor, and the FPC now see the need for corrective legislation. The new Congress should make this legislation an early order of business.

When we again go into a public discussion of this matter, we cannot overlook certain satellite elements which revolve about the four-cornered industry. The subject itself furnishes a perfect sounding board for voluble politicians, columnists, commentators, and propagandists who thrive on the contentions which they can ferment in the minds of those who do not understand such a complicated subject. It is to be hoped that the next effort to resolve the question will be sponsored by strong and enlightened representatives of all phases of the industry, in addition to a goodly sprinkling of congressional leaders who understand the fundamentals of the situation. In the meantime, producers are doing some soul searching. Recently, in a speech before the Texas Independent Producers & Royalty Owners Association, Jake Hamon, chairman of the board of the American Petroleum Institute, called on the oil men assembled to "face the fact that we are damned un-

¶ "IF *the distributor is to continue to be the salesman for the producer, he must know within reasonable limits what his gas will cost for sufficient time in the future to permit orderly planning. Few distributors advocate regulation of the producer to bring this about, but they must have some answer to that question before they will carry on with confidence and enthusiasm. On the other hand, if the producer is to exert his skills and his resources in the search for new reserves he must be well rewarded during the full term of his commitment.*"

popular everywhere in the United States outside of our own oil patches . . . they think we are a bunch of rich overbearing braggarts with a tax gimmick . . . we have got to start winning friends and influencing people, and we are starting a lot later than we should be." Then Mr. Hamon outlined the plans of the American Petroleum Institute to demonstrate to the public the really great contributions of the oil industry to the public welfare.

By way of summary, here are some of the significant items which surround this subject:

1. There are still large undedicated gas reserves and larger ones yet to be discovered. They become more and more inaccessible and the cost to find them will result in higher average field prices.

2. As these higher prices come along, they will impinge at the burner tip on competitive fuels. The price which distributors will be able to pay at the wellhead will depend upon their ability to upgrade the uses of natural gas in their areas, but, at the same time, high-load-factor operation must still be continued to maintain a price which will meet the competition. Assisting the transition is the fact that natural gas is a preferred fuel for any purpose. It should and will command a premium price —the only fuel which flows in a continuous stream from the reservoir which nature provided eons ago directly to the burner tip of the consumer.

3. The immediate need is:

(a) To secure corrective legislation which will give the FPC a clear directive and thus rekindle the producer's enthusiasm to the point where he will take the risks required to find ever more elusive reserves.

(b) To maintain sufficient revenues for the pipelines so that they may continue to expand to take care of the increasing requirements of their markets.

(c) To work out price structures for purchased gas which the distributor can determine for any given time. This condition requires that favored nations escalations be eliminated or replaced by some device which will permit the distributor to compare for years in advance the cost of natural gas with that of gas made by alternate manufacturing facilities.

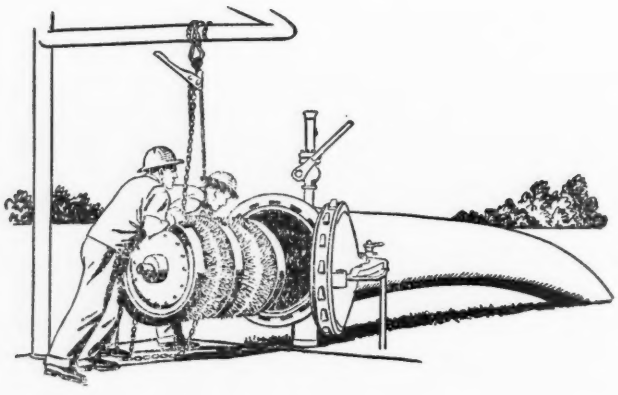
"Socialism, in one form or another, has spread until it now encompasses nearly half of the human race. . . . Even in the United States, the economic system cannot be regarded as wholly capitalistic as the government guarantees nearly all sectors of the economy against possible losses.

"A free enterprise without risk is not free just as profits without the possibility of loss can only lead to excess and wasteful production and to incompetent management.

"Ours can be called a mixed system which simultaneously contains elements that are both capitalistic and socialistic.

"The pull is naturally in the direction of increasing Socialism because government subsidies tend to increase monopolies and monopolies destroy private enterprise."

—George E. Sokolsky,
Columnist.



Gas Air Conditioning, Today and Tomorrow

The air-conditioning load is a sought-after load for the gas industry as the seasonal balance for its winter heating load. Conversely, electric utilities, which are developing considerable air-conditioning summer load, are turning towards heating uses for seasonal balance. Here is an estimate of future prospects from the standpoint of a gas appliance expert, with due regard for the underlying economics.

By GEORGE S. JONES, JR.*

STIRRED by the promise of an almost limitless market for energy to power air-conditioning equipment — from room air conditioners to giant multizone building installations—and apprehensive at the apparent "inside track" now held by the electrical energy industry, the belated yet determined effort now being made by the gas industry to develop gas air-conditioning equipment that will compete with electrically powered machinery, and thus fill the summer valley in its load curve, is being watched closely, not only by representatives of the two competing forms of energy, but by the air-conditioning industry, and makers of all types of household appliances as well.

PINPOINTING the rearranged state of affairs—a shuffling of peaks and valleys —which the gas industry is driving to offset, is the report by Edison Electric Institute late in August that the nation's electric power output soared to a record 11,794,000,000 kilowatt-hours in the week ended August 18th. It was the first time that nation-wide power demand during the summer exceeded the winter season. The figure was almost 10 per cent over a similar period in 1955, and eclipsed the previous record, established during the week before Christmas, 1955.

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While this is the first time that summer demand has topped winter output on a nation-wide scale, there have been reports from southern sections of the country for several years of summer highs, each year reaching higher. Particularly is this true in the Southwest—Texas, Oklahoma, and adjoining states—which paradoxically have the most readily accessible supplies of gas, and, it follows, at prices which do not include hundreds of miles of transmission lines.

However, in the EEI's figures for the week ended August 18th, increases were noted in nearly all sections of the country, with the exception of the West Central and Rocky Mountain areas. The largest increase, of course, continued to be in the South.

Electric power executives are frank to admit that the shifting of the industry's peak load from winter to summer is largely attributable to increasing demands of air conditioning for power.

The gas industry wants to get in on this big summer power demand, and understandably, since the parade has barely begun, and the next ten years will see a national trend toward controlled weather that will, barring a sharp economic recession and possibly in spite of such an eventuality, have a greater impact on American living than the sudden burgeoning of the mechanical household refrigerator three decades ago.

No figures exist, and, so far as I know, no forecasts have been attempted on the market for energy that this sweep toward air conditioning will create. As of this year, only about 3 per cent of the homes in the United States have air conditioning of some sort—that leaves 97 per cent of *existing* homes, plus the millions to be built during the next decade, as potential customers for some sort of energy to power air-conditioning equipment.

To give meat to these percentages, it is estimated by the National Association of Home Builders that there are now in the neighborhood of 36,000,000 single-family residences in the country, of which 27,000,000 or more are owner-occupied. Applying the 97 per cent figure to this latter group, we come up with more than 26,000,000 existing homes as yet nonair conditioned.

The present rate of home construction is in the neighborhood of 1,000,000 per year. Estimates on "obsolescence" of existing home units range around 300,000 to 400,000 units a year.

It is expected that about 1,750,000 room air conditioners *alone* will be sold during 1956, and that something like 50,000 to 200,000 central systems will be installed in homes, either new or existing.

These figures are for homes only. The size of the untapped commercial and industrial market is as great or greater.

One industry estimate is that at present less than one per cent of all modern factories have air conditioning, but studies of worker efficiency and attitude are bringing an increased realization of the dollars-and-cents value of such an installation. Interviews with leading architects and consulting engineers throughout the country indicate a rapid growth in the next ten to twenty years.

Factors in the trend to factory air conditioning include competition for skilled help, a desire to maintain employee efficiency, and pressure by labor unions. At the same time, it has been demonstrated

that factory air conditioning reduces employee absenteeism.

Some consulting engineers have estimated that as many as 75 per cent of new factories and 50 per cent of all plants in the South would be air conditioned by 1960 and 90 per cent by 1970. But the South is not the only area where gains are foreseen, and it is forecast that a high percentage of plants in the North, particularly those involving high skills, such as electronics, and those requiring climatic control for the processes in the plant, such as printing, textile weaving, and similar processes, will join the trend to air conditioning for economic reasons.

THE above facts and forecasts are cited in an effort to delineate the vastness of the demand for energy which has only begun and whose enormity in cubic feet, kilowatt-hours, or whatever other measurement may be devised for a yet-to-be-developed energy form, is incalculable.

How much of this tremendous energy market of the future will be allocated to electricity, gas, and other possible sources, is likewise difficult to forecast.

Certainly the electric industry has a pretty well-entrenched position at the present time, but the gas industry, on the other hand, is spending millions to put itself in the race, and may be expected to come up with equipment which will offer the opportunity to gain back some of the ground which has been lost to its Johnny-come-lately rival.

MANY are the plans under way to provide equipment that will use gas to develop summer cooling—in residences and other buildings. The absorption system has for a long time been performing this service, and many innovations are being made in the use of this equipment that should result in wider home-owner acceptance.

Gas-powered compressor units are being manufactured by five or six companies for use with the conventional refrigeration system also. Some of these gas-powered compressors are still in the experimental and testing stages, but information being accumulated indicates that they may be found in common use in a few years, according to gas industry spokesmen.

A leader in the field of individual company development is the Coleman Company, Inc., of Wichita, Kansas, which has been working on its projects for several

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years, and has made several hundreds of pilot models.

The company was urged to go into production in 1957 on gas air-conditioning equipment, but declined and will continue experimental work. In making the decision, company spokesmen cited the words of Sheldon Coleman, president of the company, in an address before the 1955 convention of the Southern Gas Association:

> The greatest danger faced by any company interested in manufacturing and selling gas air-conditioning equipment is that it may be tempted to rush into production before being certain that its product is thoroughly proved. To do so would be to run the risk of giving the manufacturer as well as the gas industry a black eye.

The Coleman Company also pointed out that, on the basis of experiences to date, it appears there is a definite need for more extensive and intensive installation and service training before mass marketing can be undertaken.

OTHER manufacturers active in gas climate control development include Servel, the A. O. Smith Corporation, Carrier, Worthington, York, Airesearch, Wood Electric, Corbell Industries, Solar Aircraft, and others.

In addition to the research work being conducted by individual manufacturers, a "big push" in this direction has been set up as a program of the American Gas Association's domestic gas research committee and the air-conditioning task force of AGA, both under the chairmanship of Leon Ourusoff, AGA engineer and researcher. The latter group is in its third year of research on air-conditioning applications, using gas for an energy source.

While only a year ago it could be reported that "gas has considerable need of large-scale research and manufacturing organizations, corresponding to the major electrical appliance companies,"[1] today there *are* a number of national research organizations working on projects for the development of gas air-conditioning apparatus. These include such well-known institutions as:

Arthur D. Little, Cambridge, Massachusetts; Battelle Memorial Institute, Columbus, Ohio; Stanford Research Institute, Palo Alto, California; Southwest Research Institute, San Antonio; Southern Research Institute, Birmingham; Johns Hopkins University, Baltimore; and the Institute of Gas Technology.

In addition to these domestic research projects, two foreign laboratories are tackling the problems.

Most of the projects are being carried on under the aegis of one or the other of the AGA committees mentioned above.

THE gas industry generally has taken, and continues to take the attitude that if it were simply a matter of getting out some sort of gas air conditioner that would work in the home it would be no great trick.

Compressors can be turned by any power, and engines powered by natural gas long have been a reality in large models, some of which generate electricity for aluminum plants and utilities, pump water and run compressors that move natural gas in pipelines or collect it from fields.

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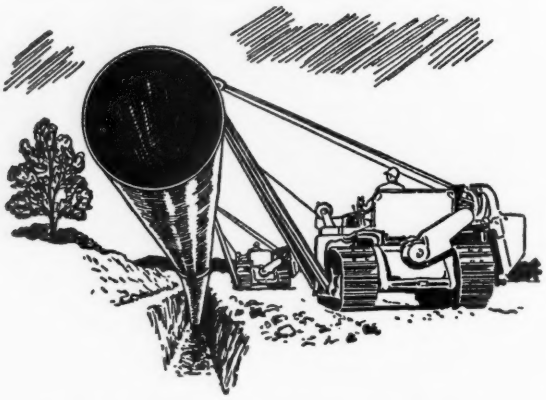
[1] "Air Conditioning Is Bigger than We Think," by James H. Collins, PUBLIC UTILITIES FORTNIGHTLY, October 13, 1955, Vol. 56, No. 8, p. 648.



The Impact of the Heat Pump

"Up until the possibilities of the heat pump were recognized, the electric industry had been content to let gas keep its winter heat load. This is not now true, which accounts for the gas industry's interest in the heat pump as well as in development of summer and year-round air conditioning, and the latter interest is intensified even more because of the fact that extension of gas pipelines to the industrial centers has built up the winter load to the point that old oil fields are being rejuvenated in eastern states to store gas underground. While this is costly, it is not so costly as building more pipelines to handle short winter peaks. Gas companies want the summer cooling business for balance as much as electricity is after the winter heating business."

The problem then, they point out, is in getting installations for the proper economy, durability, and service-free characteristics, and an up-to-date summary of developments was scheduled for airing at the AGA convention at Atlantic City only last week.

It was also felt until comparatively recently that the gas industry, particularly on the local utility level, had not been too enthusiastic in the efforts to aid in development of new applications for the use of its product. One reason which had been advanced for this was that two conflicting policies were in existence in the industry. Under one policy, the gas company itself has sold appliances, under another, strong appliance dealer organizations were encouraged. As a result, some companies were felt to be undecided as to policy, and tended to drag their feet on promotion and sales in either direction.

Now, however, AGA efforts appear to have generated a greater interest on the part of individual utility companies in developmental as well as sales promotional work, and further steps in this direction

were taken at the AGA convention just referred to.

A SCHEDULED high light of this convention was the "Air-conditioning Luncheon" on October 17th, presided over by Mr. Ourusoff, and including an address on "Progress and Promise of the Air-conditioning Industry" by George F. Taubeneck, editor and publisher of *Air Conditioning and Refrigeration News,* as well as a discussion of industry achievements, under the general title of "Pattern for Progress," with Karl B. Nagler, vice president of The Peoples Gas Light and Coke Company, Chicago, and Dean H. Mitchell, president of AGA and head of the Northern Indiana Public Service Company, making set presentations, and a number of the manufacturing companies already named scheduled to participate.

Although electric-powered room air-conditioner units seem to have a strong lead in that field, it would seem that, with the development of gas-powered compressors, the gas-heating industry, with its admitted rail position in home heating, would be able to follow through, with its already existing sales and distribution organization, to play a big part in year-round installations.

Already, of course, it shares a part of that market, although small, and in most instances gas use is also combined with electrical devices.

Gas-operated refrigeration equipment already has proven itself feasible and salable. There are few in the refrigeration industry who do not recall when a gas "icebox"—Servel—was able to get and hold a sizable portion of the market for mechanical household refrigerators. I see no reason why properly researched, developed, manufactured, and promoted gas air conditioners cannot play as large or even a larger part in the period of growth which we fully expect will eventually make the nonair-conditioned home, particularly in the southern two-thirds of our country, as much of a rarity as the home without a mechanical refrigerator.

UP to this point we have considered primarily air conditioning by what may now be described as "conventional" methods. While this presents a fairly complicated problem in the distribution of the potential market among the energy-producing industries, the problem is completely scrambled and rescrambled when we get into the realm of the heat pump, development of which is a goal of researchers and developers in both the competing industries.

Although the situation is probably well known to most readers of PUBLIC UTILITIES FORTNIGHTLY, a short run down on it will serve to clarify some of the subsequent facts and conclusions.

The electrical industry, having reached the point where summer demand (in many places) exceeds the winter peak, and looking toward that future when more and more homes, buildings, and factories will be air conditioned, has been doing considerable work on the heat pump to bring back balance to its yearly business. The heat pump simply freezes the heat out of air to cool the house in summer and, thrown into reverse, extracts heat from air, water, or earth in winter, pumping it through the home heating system.

The efforts of the electrical people in this direction are being eyed warily by the gas people meanwhile, since any development of an electrically operated heat pump

would be a threat to the gas industry's present great winter load for home heating.

(Incidentally, the AGA reported only a few weeks ago that gas has become the No. 1 fuel for the first time in the central heating of homes. With 10,200,000 dwellings, gas has surpassed oil [10,100,000 homes], and taken a long lead over coal [7,500,000 homes], the association reports, adding that the spread of natural gas pipelines has nearly doubled the number of homes heated by this energy source since 1951.)

Up until the possibilities of the heat pump were recognized, the electric industry had been content to let gas keep its winter heat load.

This is not now true, which accounts for the gas industry's interest in the heat pump as well as in development of summer and year-round air conditioning, and the latter interest is intensified even more because of the fact that extension of gas pipelines to the industrial centers has built up the winter load to the point that old oil fields are being rejuvenated in eastern states to store gas underground. While this is costly, it is not so costly as building more pipelines to handle short winter peaks.

Gas companies want the summer cooling business for balance as much as electricity is after the winter heating business.

But the gas industry does not want to be regarded as "singing the blues," as far as competition is concerned. It merely wants to take steps to get into a lucrative field, and while it is extremely interested in developing equipment which will even the seasonal peak-load situation, spokesmen point out that gas, unlike electricity, *can* be stored to meet peak requirements, and, an even more telling promotional argument, it is able to afford healthy economies in cases of multiple use—heat, cooking, clothes drier, water heater, and air conditioning, when developed.

It is all a part of the constant "cold war" between competing forms of energy, and it is not as serious as it may sound, for the outcome of this phase, as of other phases which stimulate research and developmental work by industry, will result in better equipment and lower costs for the American public.

And as far as the battle of wits and inventive talent between energy sources is concerned, I believe the comment of Thomas A. Edison more than half a century ago on the question of whether the then embryonic internal combustion engine would find work to do in view of the developments in electrical power, is just as applicable now as it was then.

Mr. Edison said, "No one kind of motive power is going to do all the work of this country."

It is similarly quite certain that no one kind of energy is going to operate *all* the air-conditioning applications our nation will see over the next several decades. There will be a place for all sources of energy—the existing ones as well as those which may be developed in the future that we do not even know about today.

Impact of Cost Allocation on Gas Pricing

This writer has reviewed foreign as well as American industrial literature and regulatory precedent to determine the scope of consideration which might be desirable with respect to cost allocation in pricing gas service. He finds some surprising gaps and deficiencies, but also makes practical suggestions for a new evaluation and reformation of gas pricing practices from the standpoint of sound economics.

By HENRY HERZ*

THE question of proper allocation of service costs has been prominent in public utility rate cases since the beginning of regulation. In its first annual report, in 1887, the Interstate Commerce Commission expressed its hope that proper cost analysis techniques would be found which would make every passenger and every freight shipment bear its fair share of the costs of service. Corresponding hopes were frequently expressed by newly organized state regulatory commissions.

Up to the beginnings of regulation, public utility managers, particularly in the then new electric service field, showed a good deal of interest in cost analysis and allocation techniques as a tool for proper pricing of the service. In the literature of this early period may be found many cases of exaggerated claims as to the usefulness or desirability of pricing the service in terms of allocated cost. Such claims un-

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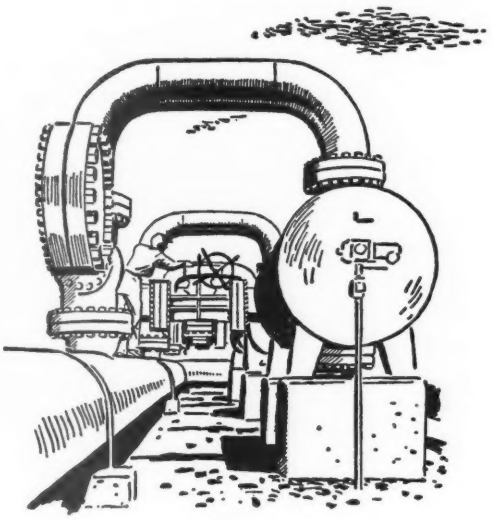

doubtedly influenced accounting and engineering staffs of the original regulatory commissions in the direction of faith in the ability of cost finding and allocating techniques to solve all the pricing problems of the utilities under their jurisdiction.

AN unfortunate but understandable result of this early preoccupation of regulatory experts with pricing by cost analysis was to drive underground much study and effort along cost allocation lines by staff personnel of the regulated utilities. It is well known that some large companies maintained current cost analyses for years; but few outside persons ever saw them. Since the long series of articles on cost allocation for electric utilities which appeared in *Electrical World* from 1922 to 1928, the literature of the regulated industries in the United States contains few contributions to the subject, although the American contribution to the early literature is substantial.

In recent years, however, the problem of cost allocation as a tool for pricing of utility service has become an increasingly serious one for the natural gas industry, and particularly for those portions of the industry subject to the jurisdiction of the Federal Power Commission.

The practice of the commission's staff is to depend entirely upon costs of service, determined and allocated according to rigidly conventionalized procedures, in fixing not only the total cost of service for jurisdictional business, but also the prices or rates at which the regulated resale service can be sold. This program has largely been adopted, or inferentially approved, by the commission, although not without question by individual commissioners from time to time.

THE FPC approach (if for convenience we may so label the doctrine that only conventionally determined and allocated costs shall be taken into account in rate making) has aroused widespread discussion and considerable opposition within the regulated industries. However, much of the resistance to the FPC approach has been ineffectual because too many of the opposing concepts or alternative procedures proffered to the commission and its staff reflect the short-run advantage of the particular applicant and not a search for underlying economic principles and operating and commercial necessities which could serve as a basis for a sounder regulatory policy.

This article represents an analysis and critique of FPC policy in terms of standards and principles which, though once well known and widely understood, seem to have been pushed aside and forgotten. It is offered in the hope that it may suggest to the commission, its staff, and others, alternate approaches to fair and reasonable pricing of natural gas service. While the reference here is to gas service, the basic ideas are applicable to the pricing of all monopolized utility services under regulation by public authority.

Uses of Cost Analysis

IN the regulation of natural gas companies, the cost analysis problem normally arises in two clearly different connections. In the first place, it is necessary to determine what portion of total annual costs incurred by an integrated gas operation should be apportioned to the

"jurisdictional business"—that portion of the total enterprise activity which is subject to regulation by the commission. Secondly, how should the total cost of service, whether for all business, or for the jurisdictional business alone, be apportioned among the several service classifications which make common use of the utility's plant and facilities? Analyses directed toward these two problems have different objectives; and we shall see that they require different techniques.

FOR convenience, we shall call the first type of cost analysis *jurisdictional,* since it aims to provide an allocation of total *enterprise* cost to the regulated portion of the business only. The allocations commonly used by FPC to separate cost of the regulated interstate resale business from the unregulated direct sales provide excellent examples of *jurisdictional* cost analyses. Similar analyses are required to separate intrastate and interstate telecommunication service costs; and other examples may readily be found in the electric utility field.

The second type of cost analysis, which aims to provide some guidance in the division of total costs of *jurisdictional* business (or of all business, if there is no jurisdictional allocation problem) among the several classes of customers, or to assist in designing particular rates, may be called for convenience *class* cost analysis.

A SUBSTANTIAL amount of the controversy over FPC cost allocation policy arises because the commission, its staff, or both, seem to confuse these two quite distinct purposes of cost analysis, and tend to make the *jurisdictional* cost analysis serve the purpose of fixing rate patterns. The *jurisdictional* cost allocation is unavoidable. It is required because the 1938 act does not confer upon FPC authority to regulate direct sales, and hence there must be a division of property and costs between the two categories of regulated and unregulated business. On the other hand, the act does *not* specifically require FPC to fix class rates without taking into account the many factors, other than allocated total service costs, which should guide the design of class rates.

This is not to say that there are no common problems of cost analysis as between *jurisdictional* and *class* cost analyses. Certainly the two sets of analyses, if used, must be consistent with one another. However, the starting point of clarity in

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this whole matter is to recognize that there are two different objectives sought and that cost allocation or analysis has a different significance for each.

Problems in Jurisdictional Cost Allocation

So long as regulation aims at limiting the revenues of a public utility to total costs to serve, and some utilities also handle unregulated business, it is inevitably necessary that a jurisdictional allocation of costs be made in order to determine a total revenue requirement. And so long as a utility serves an expanding market which can readily support revenues sufficient to meet such costs, the regulatory approach by way of cost will be used.

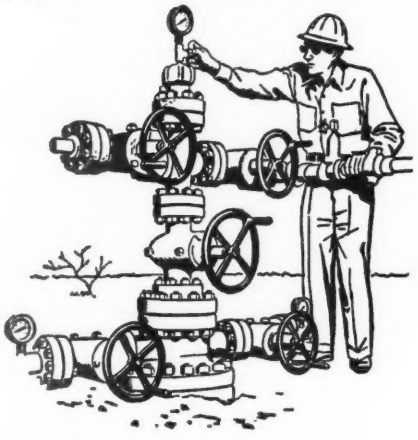
There are two fundamental problems of procedure in cost allocation affecting both the jurisdictional and class types. First, the regulatory agency must review costs over a definite period, usually the test year. Secondly, since much of the cost does not vary with the commodity output, some method must be found for fairly apportioning these fixed, nonvariable, or (as they are usually called) demand costs. Relatively little controversy arises over the other elements of the jurisdictional cost allocation procedure. It should be noted that these two problems are independent of the character of the rate base; they are as important whether book costs or appraisal values are used to measure the capital employed.

The test year is usually the last twelve months for which information is available as to investment and expenses. Its use can be justified by two basic considerations. First, the period is or is asserted to be long enough to avoid serious short-run, nonrecurring fluctuations in revenue and expense. That is, the average annual rate of flow of revenues and expenses is deemed to be represented with reasonable accuracy by the figures for the test year. Secondly, because of weekly and annual cyclical variation of consumers' demands for service, the whole year is the shortest period not affected by such variation.

In jurisdictional allocation, the test year choice may involve controversy because it may not be equally representative as to quantity or character of *both* regulated and unregulated business. Jurisdictional customers' interests are served if expenses and other costs are apportioned in the maximum possible degree to the unregulated portion of the business. Stockholders' interests are otherwise. If the result depends in any important degree upon the selection of a test year, controversy ensues.

The commission's staff has ordinarily insisted on a past test year, so that "actual" costs can be determined. It has generally rejected, apparently with commission approval, use of estimates of future results during years when the rates in question may be expected to be effective.

This insistence on the superiority of a conventionalized report on experience, over the expert employment of the facts of such experience to provide some guide to probable future results, is obviously in accord with the demands of "administrative convenience." However, this policy completely misjudges the significance of facts for action, which always has a future reference, and misapplies them by a stubborn insistence on the half-truth that "there is no better guide to the future than the past." Also, it is inherently biased in



Allocating Capacity Costs

"THE problem of allocating capacity costs arises not only in public utility regulation, but everywhere we have joint products or services from a common production facility which is designed to accommodate cyclically recurring peak loads. It occurs in thousands of cost accounting problems in private industry and in governments. It arises in case of most cost-plus contracts for part of the total output of a factory or other productive facility. (Indeed, public utility regulation is itself cost-plus pricing.)"

favor of jurisdictional customers during times of rising cost levels.

ON the side of this policy of using a past test year is the avoidance of any tendency on the part of applicants to burden the record with anticipated increases in costs, or decreases in sales, with little basis in fact. But surely the commission and its now widely experienced staff could profitably employ some of the effort currently spent in wrangling over the minutiae of results of past test years in assembling and testing the methods and materials for better forecasting of probable future, and normal, years' results. To do so would center all remaining controversy on the only matter that really counts; namely, the most probable result in the future from application of the rate structure in question.

With respect to the second major problem of jurisdictional cost allocation—the question of how to apportion fixed or capacity-related costs—it may at once be said that this matter must of necessity be conventionalized. As set forth in greater detail below, there is no basis justifiable in terms of economies or technology for allocating *all* of the identifiable costs of

jointly produced products or services to the separate products or elements of output. All allocations to separate services of the total costs of any period are in some degree arbitrary, depending upon the predilection or whim of the analyst, or, more likely, upon his interests.

THE typical allocation procedure is first to separate out elements of cost which can be identified as related in some simple way to the output of service (*e.g.*, quantity of gas delivered by a pipeline company) and to call the remainder "fixed" cost. There is usually little controversy over this step. Next, if the remaining "fixed" cost contains any elements specifically related to either jurisdictional or nonjurisdictional service, but not both, such elements may be assigned to the service responsible for its being incurred. Some controversy may arise in this connection in cases where the proportion of nonjurisdictional business is large. However, such matters can usually be disposed of by reference to technological or managerial considerations requiring such costs to be incurred.

But when we come to the allocation of the remaining fixed costs, we enter the main area of conflict. There have been about as many methods suggested for performing the allocation of this portion of costs as there have been analysts who have dealt with the problem. The commission has been under the inescapable compulsion to adopt some method, because, as we have seen, the jurisdictional allocation of cost must be made. It is consequently to be expected that its choice of methods has been widely criticized, and frequently by persons whose interests or lack of comprehension of the technical nature of the problems makes their criticism of no merit.

Nevertheless, the commission's adopted procedure has not been without its critics among both members and staff.

WHAT is surprising to an outsider to this controversy is that none of the contenders seem to be aware that there are basic and long-known principles which any procedure for allocation of "fixed" costs, demand costs, or (as the writer prefers) capacity costs should satisfy. There is a considerable literature on the subject, and it is world-wide. The problem of allocating capacity costs arises not only in public utility regulation, but everywhere we have joint products or services from a common production facility which is designed to accommodate cyclically recurring peak loads. It occurs in thousands of cost accounting problems in private industry and in governments. It arises in case of most cost-plus contracts for part of the total output of a factory or other productive facility. (Indeed, public utility regulation is itself cost-plus pricing.)

The commission's current capacity cost allocation procedure is generally referred to as the Atlantic Seaboard method, after the case in which it was first promulgated and defended in detail.[1] The commission summarized its view of the total problem as follows:

> The controversy generally engendered in rate proceedings as to the proper method for allocation of costs stems largely from the fact that the relative importance of the demand (capacity) and commodity (volume) functions cannot be measured with scientific ac-

[1] Re Atlantic Seaboard Corp. et al. Opinion No. 225 (1952) 94 PUR NS 235.

curacy. In the final analysis the allocations of cost to these respective functions are and must be largely dictated by informed judgment. Throughout our administration of the Natural Gas Act we have continually strived to develop—and improve—methods of allocation which would most properly apply to the natural gas industry activities subject to our jurisdiction in the matter of rates. . . .[2]

THE commission then referred to the Mississippi River Fuel Corporation Case and the opinion of the circuit court of appeals for the District of Columbia[3] in which the cause was remanded on the basis of error in cost allocation. The commission pointed out that these experiences and the facts in evidence in the current proceeding required further departure from methods of allocation previously applied. The commission here refers to equity to "the various classes of customers," but, significantly, does not refer to equity toward investors in connection with the cost allocation problem.

The commission further pointed out that the three witnesses testifying in the Atlantic Seaboard proceeding divided costs as between demand and commodity factors or elements. Demand costs are characterized as those associated with capacity of the facilities, and commodity costs with the volume or quantity of the gas delivered:

> A natural gas transmission facility performs both a capacity and a volumetric function. In this sense it is a joint facility, which thus presents the problem, always difficult, of allocating joint costs. This problem is not unlike that which was presented to the Supreme Court in the Colorado Interstate Case[4] as to which it was stated: "Allocation of costs is not a matter for the slide rule. It involves judgment on a myriad of facts. It has no claim to an exact science. . . ."
>
> In this present case, applicants, generally speaking, allocated fixed costs or expenses, except return on investment and related income taxes, to the capacity, or demand, function. . . . The staff, on the other hand, apportioned all fixed

[2] *Loc. cit.*, p. 244¶.
[3] Mississippi River Fuel Corp. *v.* Federal Power Commission et al. (1947) 163 F2d 433, 69 PUR NS 129.
[4] (1945) 324 US 581, 589; 58 PUR NS 65.

¶ *". . . the commission's demand cost allocation method, while a considerable improvement over the unmitigated peak-responsibility approach formerly used, leads to results which may in particular cases be freakish, uneconomic, and prejudicial to the interests of investors and of classes other than the regulated sales for resale. It is not the only possible method. One may readily agree with the commission that at bottom the problem of assignment of capacity costs in jurisdictional cost allocations is one of judgment. That should not, however, mean that the commission and its staff should disregard an extensive literature on the subject spanning three generations."*

costs or expenses equally between demand and volume, but, like applicants' witness, assigned variable expenses to commodity. . . .

We are unable, however, to accept the premise that merely because certain costs do not vary with use they automatically become in toto demand or capacity costs. . . .[5]

THE commission goes on to point out that a pipeline would not normally be built to supply service on peak days only. Hence, both capacity and annual use are important considerations in the development of the project. In the issuance of certificates of public convenience and necessity, both capacity and volume are what are known as cost factors or "incidences" in respect to the capital outlay for the pipeline project. It follows that reasonably accurate results can be achieved only by allocating the fixed expenses flowing from the capital outlay to both operating functions; that is, capacity and volume:

The determination of how much of the fixed costs is assignable to each function, demand or volume, involves judgment. It can only be done by judgment inasmuch as the facts upon which the determination must be made are not susceptible to mathematical computation. We know that both functions are very significant. This is not a case where one form of joint use greatly predominates. It is our opinion that these significant cost factors should be weighted equally, that is to say, 50 per cent should be assigned to demand and 50 per cent to commodity. In this manner all gas transported by the pipeline will share in all of the various kinds of expenses incurred to transport the gas. . . .[6]

THE method of allocating capacity or "demand" costs established by this opinion has been followed in subsequent pipeline cases.

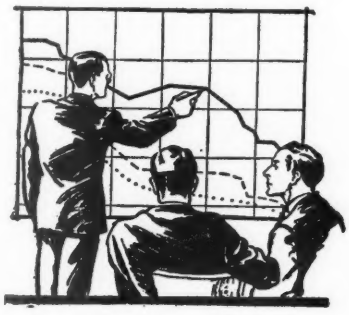
In applying the method, one-half of capacity costs are immediately distributed in accordance with volumes of gas delivered. The remainder is apportioned in accordance with the demands of the separate services at the time of the system peak. Thus, one-half of demand costs are treated exactly as are the commodity-related or "volumetric" costs, while the remainder are apportioned according to "peak responsibility."

How may the reasonableness of this, or any other capacity cost apportionment method, be judged? As in any other matter involving application of judgment, the test will be found in how well it works in practice. Here are seven standards drawn from the literature of the subject. All have been mentioned before, and all reflect common-sense considerations rather than abstruse reasoning from complicated premises.

Let us begin by agreeing with the commission that a *first principle to be followed is to assign some share of the capacity costs to all services,* regardless of whether they are off-peak or interruptible. No one is entitled to a "free ride" on the line, since there must be a line before there can be a ride. What fare should be paid for the ride is an open question, but *some* fare must nevertheless be paid.

[5] *Loc. cit.,* at pp. 245 and 246 of 94 PUR NS.

[6] *Loc. cit.,* p. 247.



Invasion of Management by Regulation

"WHEN regulatory policy departs from the function of limitation in the direction of prescription of managerial action, private enterprise is stultified and the whole system of regulation loses its chief justification. When management and regulation do not each operate as a mutual check or balance on the other, the logic of the policy of regulated free private enterprise disappears, and we may as well have public ownership and operation and avoid the expense and delay of rate cases. It is not too late in the field of natural gas regulation for both the commission and the managements of the regulated companies to rediscover and revitalize their separate and different functions. To discard the unwise use of cost allocation as a sole basis for prescription of class rates would be a good start."

THIS first principle is equivalent to saying that one who pre-empts any part of the service capacity for any time must pay something toward the capacity-related costs which can only be recovered from use of the line. It leads immediately to a second principle—*he who uses a unit of capacity for a longer time than another should pay more for his use of capacity.* In more technical terms, the allocation of demand cost per demand unit should increase with load factor, other things being equal.

Thirdly, *any customer who uses any part of the capacity exclusively should pay all of the costs assignable to that part.* That is, a 100 per cent load-factor customer should be charged exactly for that part of the capacity which he wholly pre-empts, since he requires no more, and will use no less. It is surprising how few of the many methods proposed over the years satisfy this simple and common-sense requirement. The case of the 100 per cent load-factor customer is too rare to be of immediate practical significance. Nevertheless, any method which will not satisfy this third requirement will not deal fairly with the numerous and important high-load-factor customer classes.

FOURTH, *the capacity responsibility assignment should change slowly and predictably with gradual changes in the pattern of sales distribution among the several services.* The method should not yield erratic results for minor changes in the characteristics of use of any or of all customers. This consideration has been frequently advanced as a reason for discarding simple peak-responsibility methods —they yield erratically changing answers according to the peak period selected, and with changing timing of peak loads as different classes of service develop under changing conditions of use.

Fifth, in order to make the analysis of greatest use, *the capacity cost allocated to one class of service should not depend upon the way in which the remainder of capacity cost is allocated to other classes.* Thus, the allocation of cost to jurisdictional direct sales should be the same whether there are one, two, or more other classes of service and whether these are dealt with separately or jointly in carrying out the allocation. If the method does not satisfy this standard, failure to allow for use characteristics of all other classes in detail may subject the utility to future failure to divide *all* of its costs among joint jurisdictions, leaving some cost to fall "between the seats."

SIXTH, *more capacity cost should be assigned to a unit of capacity preempted during a peak period than during an off-peak period.* Or, to say the same thing in another way, the capacity cost assigned to a unit of demand in any period should increase from a minimum during periods of minimum load to a maximum during the peak period.

Finally, *capacity costs assigned to a unit of interruptible or otherwise restricted service should be lower, the greater the degree of restriction.* This standard merely states the common-sense requirement that, other things being equal, a unit of firm load should pay more toward capacity cost than a unit of load not entitled to preempt the system capacity on a parity with the firm load.

How well does the commission's Atlantic Seaboard method accord with these principles? Let us take them one by one and see.

Since the commission's method was designed to prevent giving direct interruptible service a "free ride" on the pipelines, it definitely satisfies the first principle. But it by no means is the only method that does so. In fact, *every* method seriously proposed, except the peak-responsibility method, satisfies this condition. Even the peak-responsibility method is unsatisfactory in this respect only when there is at least one class (*e.g.,* interruptible) which uses no service during the peak period.

THE Atlantic Seaboard method will satisfy the second standard, since the assignment of half the capacity cost on a volumetric basis will tend to produce higher charges per unit of demand for high-load-factor customers than for low-load-factor ones. But again, it is not the only satisfactory method in this respect. All of the methods seriously proposed, except the peak-responsibility method, will meet this requirement. All of the variations on the so-called "partial plant" and "used-unused capacity" approaches will do so.

The third standard—that a 100 per cent load-factor class should be charged with

costs of exactly its capacity requirement—is *not* satisfied by the Atlantic Seaboard method, nor, indeed, by many of the alternative methods. A rigorous proof of this conclusion is readily constructed, but is beyond the scope of this article. The reader may test its truth, however, by recourse to a simplified hypothetical model of load conditions. The Atlantic Seaboard method tends to overcharge high-load-factor business, whether on-peak or off-peak, and correspondingly to undercharge low-load-factor business. This is a serious defect in the natural gas field. It tends toward underpricing of the strategic but poor load factor space-heating sales, stimulating their expansion while correspondingly restraining the development of higher-load-factor commercial and industrial sales. The consequent economic maladjustment of the business can be mitigated only by increased storage; but this does not assist in obtaining a fuller utilization of distribution facilities, as distinguished from transmission lines.

THE fourth standard cannot be met by the commission's allocation procedure, since it is really only a mitigated peak-responsibility approach. The results depend substantially upon the selection of a peak period—and in the natural gas transmission business there may be many days of peak or near-peak use of the facilities. Many pipelines reach an absolute peak in fall or spring, when the regulated resale business is not at a maximum, but interruptible service is being fully maintained by utilizing compressor capacity normally held in reserve during really cold weather. Some of the most serious controversies between pipeline companies and the commission's staff have arisen over the selection of the three-day peak period customarily used in establishing the peak responsibility of the various classes of service.

THE fifth standard is satisfied by the Atlantic Seaboard method. Since class peak responsibility and consumption can both be directly added to give the total peak and total consumption, application of the method to any part of the total sales does not require knowledge of how the remainder of costs would be apportioned to the remainder of the sales.

Likewise, the commission's method, in principle, if not always in application, satisfies the sixth standard since the use

¶ *". . . nothing in either law or economics* REQUIRES *the commission to utilize its* JURISDICTIONAL ALLOCATION *as a sole basis for designing class rates, or for deciding the levels of demand and commodity charges in two-part resale rates. That the commission has nevertheless elected to constrain pricing policies of the pipelines (and other regulated companies under its jurisdiction) by so utilizing the results of jurisdictional cost allocation has given rise to more concern and controversy than any other phase of its regulatory efforts since the regulated companies have been forced to accept the conventionalized book-cost rate-making formula."*

of peak responsibility as a basis for apportioning half the demand costs will ordinarily produce lower demand cost assignments to off-peak or interruptible sales. However, it is possible that in some cases use of an off-season actual peak delivery may lead to overcharging interruptible load and undercharging the peak-producing space-heating load, as noted above.

FINALLY, the commission's Atlantic Seaboard procedure cannot distinguish clearly between degrees of limitation of availability, and hence cannot be said to satisfy the seventh standard.

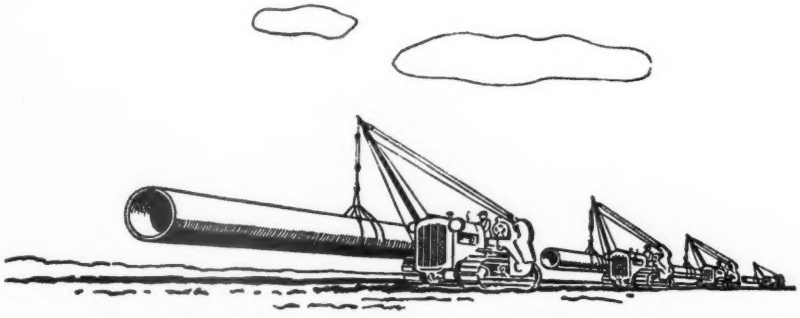
In summary, the commission's demand cost allocation method, while a considerable improvement over the unmitigated peak-responsibility approach formerly used, leads to results which may in particular cases be freakish, uneconomic, and prejudicial to the interests of investors and of classes other than the regulated sales for resale. It is not the only possible method. One may readily agree with the commission that at bottom the problem of assignment of capacity costs in jurisdictional cost allocations is one of judgment. That should not, however, mean that the commission and its staff should disregard an extensive literature on the subject spanning three generations. Adoption of the common-sense standards set forth above would serve to limit and discipline judgment in this matter to the best service of all of the interests affected by commission regulation.

Problems in Cost Allocation for Class Pricing Purposes

As we have seen, the use of a cost basis of regulation requires the commission to allocate total cost between regulated sales for resale and unregulated classes of business. However, nothing in either law or economics *requires* the commission to utilize its *jurisdictional allocation* as a sole basis for designing class rates, or for deciding the levels of demand and commodity charges in two-part resale rates. That the commission has nevertheless elected to constrain pricing policies of the pipelines (and other regulated companies under its jurisdiction) by so utilizing the results of jurisdictional cost allocation has given rise to more concern and controversy than any other phase of its regulatory efforts since the regulated companies have been forced to accept the conventionalized book-cost rate-making formula.

The commission's recent and usual practice in pipeline rate cases has been to apply the Atlantic Seaboard formula, which arbitrarily assigns half of capacity costs to commodity sales, and consequently cuts in half the portion of costs recognized as nonvariable with sales, to determine the demand and commodity charges of the actual rate schedules under which gas is sold for resale in interstate commerce. This practice has had two highly undesirable results.

FIRST, it has tended to make the commodity price per Mcf of sales too high, and the fixed demand charges correspondingly too low. This high commodity price limits the ability of the distributing utility customers of the pipeline to make low off-peak and interruptible rates which would attract enough of these classes of sales to maintain a satisfactory load factor on their distributing systems. Increased use of underground storage near load centers does not, however, help to achieve



Why Space-heating Gas Is Underpriced

"THE Atlantic Seaboard method tends to overcharge high-load-factor business, whether on-peak or off-peak, and correspondingly to undercharge low-load-factor business. This is a serious defect in the natural gas field. It tends toward underpricing of the strategic but poor load-factor space-heating sales, stimulating their expansion while correspondingly restraining the development of higher-load-factor commercial and industrial sales. The consequent economic maladjustment of the business can be mitigated only by increased storage; but this does not assist in obtaining a fuller utilization of distribution facilities, as distinguished from transmission lines."

economic utilization of distribution capacity. In consequence, underpricing of gas for space heating leads to large increases in demands, to increased investment in distribution capacity, and to inevitably rising prices for the favored space-heating business. But there is a limit to the rise in prices—the increasing pressure from competitive substitutes. Thus, the expansion of gas space-heating sales under the push of underpricing at the city gate threatens to leave many distributing companies with expanded plant which cannot be operated at economically satisfactory capacity factors.

The second, and perhaps most undesirable result of the commission's predilection for using its jurisdictional cost allocation as a basis for prescribing rate forms and levels, is to discard managerial judgment as a factor in rate structure design. The usual practice in state jurisdictions is to leave management a broad latitude to set levels and forms of pricing within limits imposed by the commissions' determinations of allowable total revenues and the requirements of good public relations. This is true even when the particular commissions may have, as has FPC, statutory power to prescribe and fix class rates. In spite of this historically and economically justifiable pattern of latitude for class pricing in state utility regulation, the commission has insisted on rigidly con-

trolled price fixing according to its cost-of-service and cost allocation formulas.

THE attitude underlying this policy is clearly shown in Commissioner Connole's recent language in his separate concurrence in the order adopting and authorizing the rates agreed upon by all parties in settling a recent major pipeline rate case:

> From the terms of the stipulation read into the record of this proceeding on June 28, 1956, and from an examination of the evidence submitted to date, it is clear that the level of the demand and commodity components of the approved rates do not represent an effort to recover *costs properly assignable* to the demand component and commodity component respectively.
>
> Although total revenues received under this rate schedule here approved will be sufficient to meet all operating expenses, depreciation, and taxes and to provide a return on net plant, there has been no showing that the *costs assignable to the commodity component* will be fully met in any of the zones. This becomes of critical importance where interruptible sales are proposed at rates no higher than this component and are justified by the company to the commission on the theory that fully allocated costs for the proposed service would be met. . . .
>
> And let the record show further, and show it unmistakably, that this commission cannot, and does not hereby, condone the almost unavoidable discriminations inherent in sales made below cost. Whether or not the perpetuation of interruptible sales at rates below cost is inevitably destructive of the financial stability of the company, as it appears clearly to me to be, remains to be seen. I approve this settlement, not because I do not believe such to be the case or because I think the risk has been minimized. I approve it only because the total dollars do not appear to yield more than a reasonable return and because at this tardy date, with the policy long set, no other course of action remains open to us. . . .[7] (Emphasis supplied.)

This attitude can be summarized in a single sentence: *No factor other than allocated total cost should be allowed to affect the design of class rates.* That makes the design of class rates wholly dependent upon the method of cost allocation adopted, which, in the commission's own language, is a matter of judgment. Thus, by a process of prescribing first, a rigid approach to jurisdictional cost allocation, and second, requiring that the results of this allocation procedure be the sole test of reasonableness of the resale rates, those commissioners and staff members who hold this extreme view would completely eliminate managerial judgment as a factor in making resale rates except for perhaps some minor peripheral areas.

HOW well does this regulatory position accord with the consensus of the literature of the subject, and particularly the earlier preregulation works in which the desire to understand and describe accurately was at least as important as the desire to justify a predetermined regulatory end result? An adequate survey of the literature would fill a large book. The

[7] In the Matter of Northern Natural Gas Company et al. Docket Nos. G-2505 et al. (Issued July 26, 1956.)

writer has reviewed all of the English language materials on the subject, as well as a good deal of the German and French literature.

The conclusions of economists, engineers, and administrators would be in substantial accord with this excellent statement from the early literature:

> (a) No class of business should be done at a loss: As a proof that there is not a loss, rates should be so adjusted that each class of service will positively show a profit, although that profit may be small.
>
> (b) No class of business should be required to carry an exorbitant profit. The conditions surrounding our business may usually be relied upon to keep customers from paying a rate which contains an exorbitant profit. In other words, when a class of customers readily pays a certain price for service, it may be assumed that the profit earned by the company in the performance of that service is not exorbitant.
>
> (c) Between limits of no profit and exorbitant profit, the value of the service to the customer must guide the company in determining the profit to be earned by each class of service.
>
> The propriety of an entire schedule of rates, or a particular schedule of rates, may be tested by determining whether it will yield a fair return; but this test will not serve to fix for a particular rate its exact position between the stated limits. This exact fixing of a particular rate is a matter of judgment, and equally so whether the judgment be exercised by the utility, or by a commission or other public authority.[8]

Put in another way, there is a reasonable range for the exercise of managerial judgment between a lower limit for particular classes, established by costs added by added business, and an upper limit for all business, established by the total allowable revenue. To allow management the maximum latitude for fixing the terms and conditions under which service can be sold will best serve all interests within the framework of our accepted social policy of free private enterprise within limits prescribed by regulatory authority. When regulatory policy departs from the function of limitation in the direction of prescription of managerial action, private enterprise is stultified and the whole system of regulation loses its chief justification.

When management and regulation do not each operate as a mutual check or balance on the other, the logic of the policy of regulated free private enterprise disappears, and we may as well have public ownership and operation and avoid the expense and delay of rate cases.

It is not too late in the field of natural gas regulation for both the commission and the managements of the regulated companies to rediscover and revitalize their separate and different functions. To discard the unwise use of cost allocation as a sole basis for prescription of class rates would be a good start.

[8] "Reasonable Profit," by James V. Oxtoby, Association of Edison Illuminating Companies (1911).

Washington and the Utilities

A Cost Alternative for Gas Producers?

WHATEVER may be the complexion of the new Congress—and that depends entirely on the November elections—it is generally expected that another effort will be made to secure an amendment to the Natural Gas Act which will clarify if not exempt independent gas producers. Any unanimity of opinion as to what form such a bill will take or what will happen to it, if anything, stops right at that point. But there is increasing evidence that the brickbat throwing phase of disagreement between producers and distributors, as well as the pipelines, has definitely ended.

None of the three segments of the industry expects that Congress could possibly do anything to make *everybody* feel happy. Producers, for example, do not expect that they will be able to get another Harris-Fulbright Bill, or anything like it, as far as total exemption from FPC control is concerned. The distributors, on the other hand, having made their point pretty decisively with the producers about the importance of the consumer protection, are looking more sympathetically at the regulatory problems which are peculiar to FPC control of gas production. They realize that the continuation and encouragement of an adequate and dependable gas supply for interstate sale is a basic condition for the operation of *any* part of the gas business.

The pipelines, primarily interested in transporting, are willing to go along with any solution that will keep the other parties at both ends of their lines relatively content, if not actually happy. The emphasis, therefore, on any consideration of new gas legislation is likely to be on regulatory method rather than the existence of regulation at all.

THE FPC—all-important fourth party in all such discussion—has had its own share of problems and most of them seem to revolve around the basic question of cost pricing. It is possible that the U. S. Supreme Court in reviewing the Panhandle Eastern decision (11 PUR3d 113) of the U. S. circuit court of appeals for the District of Columbia, may ease the burden of the FPC's job by allowing it more discretion in the use of regulatory methods. The lower federal court certainly did not ease the FPC's burden in this respect, but, on the contrary, virtually

required complete evidence and consideration of production cost (if not the actual use of) cost methods in fixing producer rates.

It is possible, therefore, that the highest court could either throw the ball back to Congress by refusing to review the rigid position taken by the lower federal court in the Panhandle Case, or it could throw the ball back to the FPC by reversing or modifying the lower federal court. In that event, the urgency of congressional legislation might be lessened.

Meanwhile, gas industry people are wondering not only where their strongest pitch might be (to the Congress or the FPC) but also on what basis. So far, the FPC has been nibbling around the edges of producer rate cases, encouraging the collection and introduction of cost data, but not actually demanding such as a *conditio sine qua non*, as it has in earlier electric rate cases and natural gas-distributing cases.

What Price Gas Commodity Value?

ONE of the economic, as distinguished from legalistic, factors which has not so far received the attention it might deserve, is the fallacy of assuming that regulation of gas production involves the same kind of property rights (from a constitutional standpoint) as the transportation or distribution of gas, or as the generation or sale of electricity or other utility services. Gas production involves not only the operation of equipment used in bringing forth the gas from the ground for sale in public service, it also involves the equitable ownership of the gas itself. This means the value of gas, *as* gas, in the ground or out of it. Are the two together —(1) cost of production and (2) value of the gas itself—entitled to independent recognition in fixing the compensation to which the producer is entitled?

Such a double factor of price fixing is not needed for electricity, where the commodity involved is created entirely out of the generating equipment and converted materials (such as coal) which presumably are given full recognition as part of operating expense. Nor is the analogy of gas production any closer to the operations of either the pipelines or the gas distributors—neither of which, in their pure states, own or produce a single Btu of gas for which they are entitled separate compensation, over and above the expense of transportation and distribution, with reasonable return thereon.

To apply the strict cost basis of rate making, which has heretofore been used for electric utilities and gas transportation and distribution, would be to give the producer only a return on the tools of production, but nothing for the gas produced. It would be like restricting a farmer's prices to a return on his farm implements or his own time and that of his hired help, but allowing nothing for the value of his crops. It would be like giving a fisherman a return on the cost and upkeep of his nets and labor but nothing for his fish.

Gas in the ground is recognized as a property right accruing to the owner of the ground. To say that the owner is entitled to nothing for the value of that gas, above and beyond the cost of bringing it to the surface and delivering it in an acceptable state to the market, is to refuse recognition of a positive property value which has heretofore been in a class entitled to constitutional protection.

THE crux of the problem arises, of course, when an effort is made to estimate what *is* the value of this commodity—this part and parcel of the property of which the owner would otherwise

be deprived without independent recognition or just compensation. It is at this point that either the courts or Congress, or both, will find themselves adrift.

The so-called field price theory, the area price theory, the price pressure influence on the relationship of big producers to little producers or to groups of small producers—all have their place for consideration in attempting to draft any formula. It may well be that a strait-jacket formula (as such) is the last thing which a sensible and practical solution of the situation needs.

At this point it can only be said with assurance that the three branches of the industry, the FPC, and the independent consumer groups, as well as Congress, will have a tough job ahead.

Producers Are Not Free to Abandon Service

WHILE the industry and its regulators ponder questions of rate fixing and related problems of supply, the courts continue to shore up the foundation of firm FPC regulatory control over the independent producers. The latest in this series comes from the third U. S. circuit court of appeals in the so-called Huber Case. Both producers and pipeline companies were watching the Huber Case closely to discover whether the J. M. Huber Corporation had found a way out of FPC jurisdiction through the simple solution of providing beforehand its own exit, by way of contract with the interstate pipeline. The FPC decided this would not work and the court agreed.

The Huber decision, which is likely to be appealed to the U. S. Supreme Court because of its importance not only to the parties but the rest of the gas industry, raises the question of just what steps a gas producer could possibly take to avoid FPC control. Here was a gas producer operating under a contract years before there was any thought or serious consideration of federal regulation of natural gas operations of any kind. Yet the very fact that Huber anticipated that some day the federal government might come along and take over regulatory control of such transactions, and the very fact that it tried to provide its own exit on the day the federal government walked in that door, is now used by the U. S. circuit court of appeals as a basis for forcing the continuation of operations, subject to FPC control.

THE theory of "constructive notice" (whereby the operators of a business, originally not subject to regulation, have imposed upon them notice by anticipation that, some day, a regulatory law would be passed) is not a new theory. Public utilities of all kinds, in many states, and over many years, have experienced this sudden shock of finding out that they were henceforth to be held responsible for something which they were supposed to have known all along, as far back as the time they first started into a then unregulated business. But the carrying of this concept to the point of destroying any actual effort, by way of anticipation, to get *out* of the business (when, as, and if regulation should arrive on the scene) is, in the opinion of some, a new angle.

This situation is made even more ironic when the very act of seeking such an escape is used to bolster the argument that the previously unregulated operator must have anticipated what was going to happen, and is therefore all the more surely subject to it. The court's opinion clearly took this view.

Financial News and Comment

By OWEN ELY

Trends in the Gas Utility Industry

THE gas utility industry enjoyed an excellent year in 1955 from a production viewpoint, and 1956 thus far (thanks to more favorable weather) has produced substantial increases in net earnings.

The position of the industry in the over-all economic picture has gained considerably in recent years, as indicated by the following figures for sources of energy in the United States:

	1946-50 Average	*1955 Prel.*
Natural Gas	17%	26%
Oil	33	37
Coal	46	33
Water Power	4	4
Total	100%	100%

The gas utility industry's construction program for 1955 amounted to $1.3 billion, and over 28,000 miles of gas mains were added (a new record) bringing the total to nearly 500,000 miles. Of this total about 145,000 represented transmission lines while 300,000 represented the distribution network. Expenditures for 1956 are estimated at $1.6 billion and during the four years 1956-59 are expected to aggregate $7.3 billion. This would be at an average of $1.9 billion annually for 1957-59. It is estimated that the industry will obtain about 35 per cent of necessary construction funds from internal sources, 48 per cent from debt issues, and the remaining 17 per cent from sale of preferred and common stocks.

IN order to offset seasonal trends, 178 underground storage pools have been constructed in 18 states (six of them last year). The estimated ultimate capacity is 2.1 trillion cubic feet, equivalent to over one-fifth of annual production. Present capacity is about four times the average for 1947-50.

Sales last year were 67 billion therms, a gain of 9 per cent, while revenues from ultimate consumers increased 13 per cent, the difference reflecting substantially the rate increases made necessary by the rising field cost of gas. However, recoverable reserves at the year end were estimated at 234 trillion cubic feet, an increase of 12 trillion cubic feet, which in-

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dicated new discoveries approximating 21 trillion cubic feet. This was the second largest increase in reserves since 1946 when the present estimates were initiated. Louisiana's reserves increased nearly 6 trillion cubic feet to over 42 trillion, with the principal increases attributable to the Gulf coast area, including offshore locations.

While offshore drilling is expensive, the percentage of producing wells has been high, with most of them good producers. Texas reserves increased over 3 trillion cubic feet and the two Gulf states now account for two-thirds of total U. S. reserves. The U. S. Bureau of Mines (acting for the Joint Congressional Committee on Atomic Energy) has estimated ultimate U. S. recoverable reserves at 1,000 trillion cubic feet.

THE substantial increase in reserves was obtained despite the threat of rate regulation hanging over the independent gas producers, as well as a heavy increase in the cost of drilling. It is said that only about one well in 40 proves profitable, and that drilling costs per well in the Gulf coast area may average as much as $644,000 for wells exceeding 15,000 feet in depth—which is fairly common practice today. In 1953 the average well cost $50,000 (for all areas).

In 1955, 3,613 gas wells were completed, 9 per cent less than the previous year's record, but 20 per cent above 1946-50 average. However, the number of oil well completions, many of which produce gas as a by-product, were 6 per cent larger.

Losses and waste of natural gas continued to decline; last year about 9 per cent was lost compared with an average of 15 per cent in 1946-50.

About 95 per cent of 1955 sales were straight natural gas. Sales to industrial users represented 53 per cent of the total while residential customers took about one-third and commercial establishments about 9 per cent.

In the postwar period residential sales have almost tripled while industrial sales increased about 240 per cent. The residential load is said to be accounted for as follows: space heating 67 per cent, water heating 18 per cent, ranges 12 per cent, and others 3 per cent.

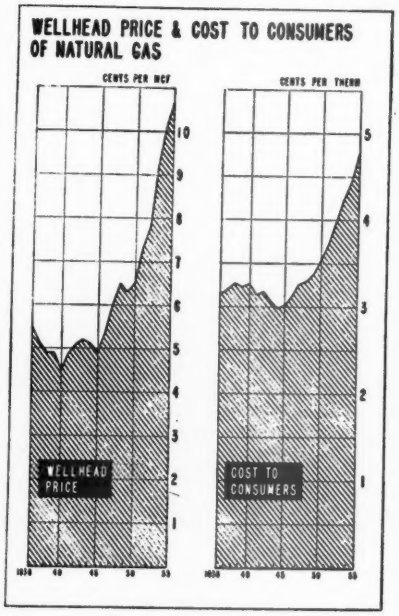
TOTAL gas revenues from ultimate consumers aggregated $3.5 billion last year, a gain of 13 per cent. Industrial revenues increased 14 per cent, commerical 12 per cent, and residential 13 per cent. In the postwar period industrial revenues increased 235 per cent against an increase in physical sales of 140 per cent. On the other hand, residential revenues increased 185 per cent and sales 190 per cent. Thus, in the case of domestic customers, higher gas-heating saturations and promotional rate schedules have held down the increase in the average rate to a nominal amount. Average revenue per residential customer last year was $76.37, which was slightly higher than the average annual bill for electricity (about $73).

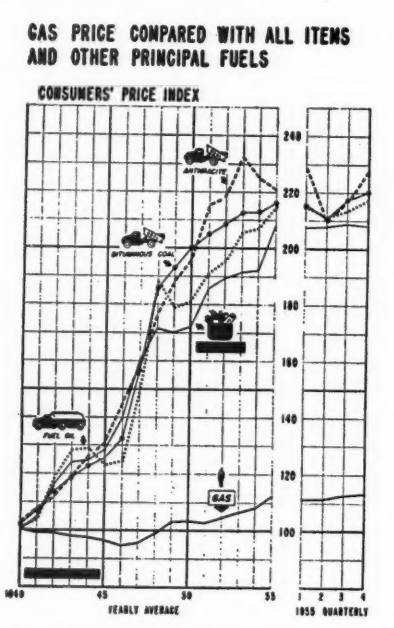
The seasonal trend in the gas business is much more marked than for the electric utilities. In 1955 revenues were as follows by quarters:

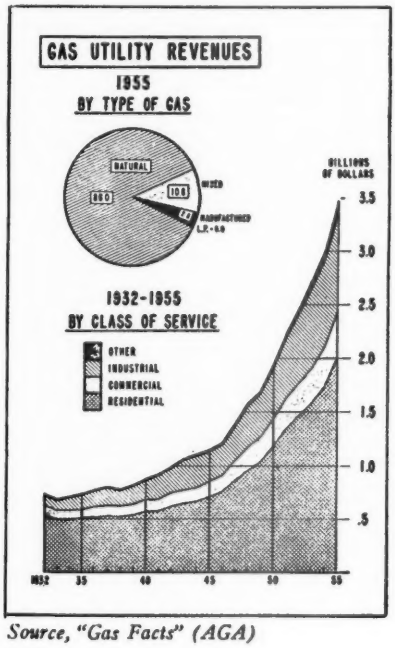
	Revenues (Mills.)	*Percentage*
First	$1,178	34%
Second	762	22
Third	559	17
Fourth	934	27
	$3,433	100%

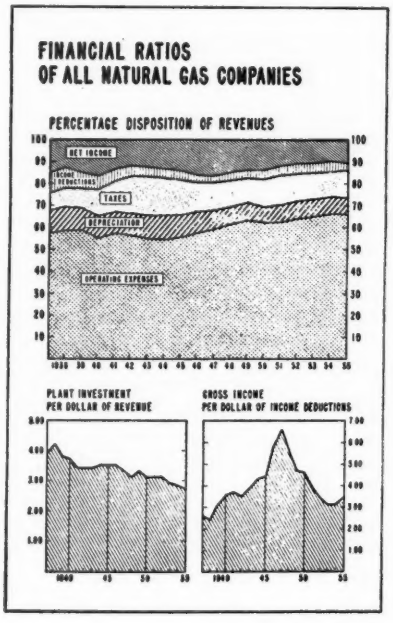
From the viewpoint of net earnings there is a still greater seasonal difference because of the fact that overhead costs are usually evenly allocated.

The average number of customers









Source, "Gas Facts" (AGA)

served last year was 28,500,000, an increase of nearly 1,000,000. About 23,000,000 received natural gas, 4,000,000 mixed gas, and 1,500,000 manufactured gas and LP gas distributed through mains.

Since the number of housing starts will be lower this year than last year, it is estimated that the 1956 increase in residential customers may be smaller than last year, possibly around 700,000. It is expected that family formations will be accelerated about 1960, which might result in another housing boom and thus stimulate demands for residential gas service.

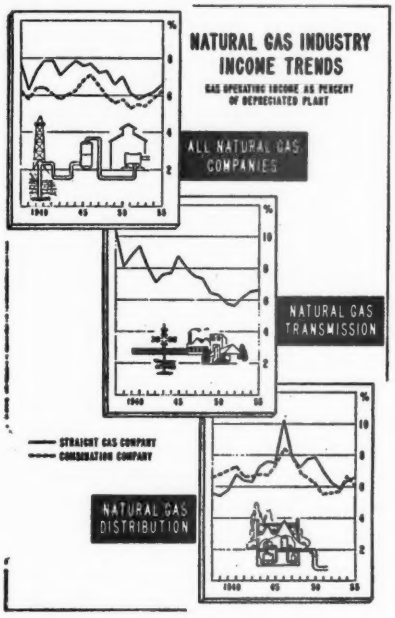
Gas house-heating customers averaged 14,700,000 in 1955, an increase of 1,300,000 over the previous year. Fifty-six per cent of all residential customers now use gas for heating and it is estimated that by 1958 the ratio will increase to two-thirds. Following are the territorial percentages of saturation:

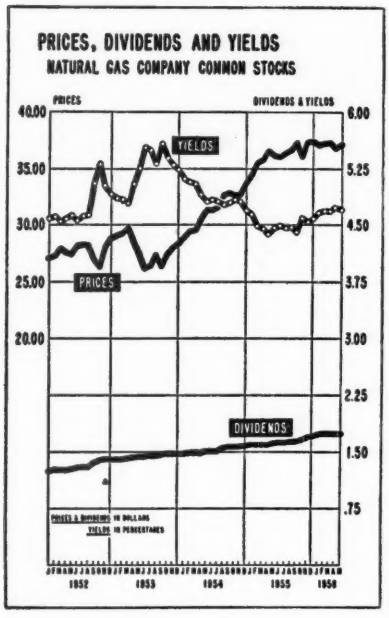
	1950	*1955*	*1958 Forecast*
New England	5%	10%	18%
Middle Atlantic	12	25	32
East North Central	26	46	59
West North Central	50	70	82
South Atlantic	30	56	68
East South Central	62	77	86
West South Central	99	99	100
Mountain	83	92	95
Pacific	88	94	100
U. S.	41%	56%	65%

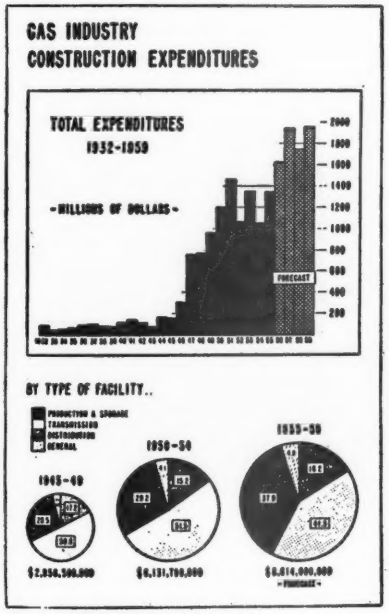
THE gas utilities are anxious for manufacturers to develop air-conditioning devices, particularly a counterpart of the heat pump which is becoming increasingly popular with the electric utilities in the South. This would help to balance their heavy winter heating load. Experiments have been under way for some years and the Coleman Company of Wichita, Kansas, is said to be making progress with a gas-powered summer air conditioner. Rheem Manufacturing has recently unveiled a central air-conditioning and heating unit, operating with a single gas burner and employing "a jet principle" of cooling which has previously been used only in very large commercial or industrial applications. The new unit is contained in a cabinet 4x4x2 feet. Water is heated or cooled in coils and air passing over the pipes is circulated through conventional wall ducts.

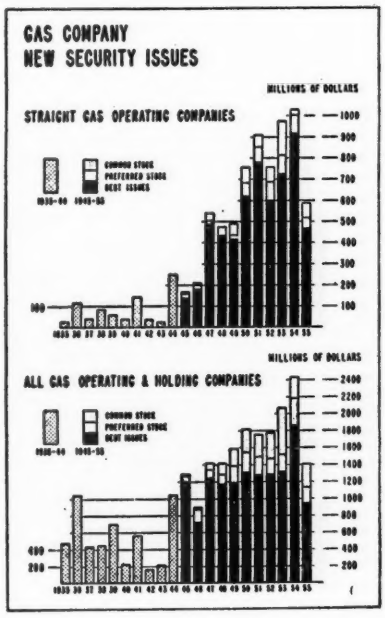
INDUSTRIAL use of gas is now divided about as follows: field use, 27 per cent; fuel for electric utility power plants, 19 per cent; oil refining, 10 per cent; carbon black plants, 4 per cent; other industries, 40 per cent. There is some question regarding the future availability of gas, particularly on an interruptible basis, for boiler fuel. President Sporn of American Gas & Electric has forecast that by 1975 the electric utilities will use 1.7 billion cubic feet of gas as fuel compared with 1.152 billion cubic feet used last year. However, some authorities predict that the rise in natural gas reserves will begin to taper off after 1960, with a declining trend after 1967-70. (See chart page 185, FORTNIGHTLY, August 2nd; also chart page 47, October issue of *Scientific American*.)

The last published earnings for the natural gas pipeline companies are contained in the FPC bulletin for July. In that month revenues increased 12 per cent over last year, and net income 15 per cent; cost of purchased gas was up 16 per cent. For the twelve months ended July revenues gained 17 per cent (with cost of purchased gas up 10 per cent) while net income gained 16 per cent. The cost of purchased gas approximated 15 cents per Mcf in July this year, only slightly higher than a year earlier. Net gas utility plant in July was about $4.7 billion, an increase of 8 per cent over July, 1955.









Source, "Gas Facts" (AGA)

Major Pipeline Construction Program Still under Way

RECENT completion of two major natural gas transmission lines, Pacific Northwest and American Louisiana, have added nearly 4,000 miles to the nation's natural gas system.

Other major pipeline plans are also under way. The 2,320-mile pipeline to be built by Trans-Canada Pipe Lines, Ltd., finally got started in June this year after much financial and political maneuvering. The Senate at Ottawa passed the government bill to lend the company $80,000,000 which it needed to begin building the pipeline on schedule. (Apart from this government loan the line will be controlled by U. S. capital.) The loan will probably be repaid to Canada by next April, at which time it will be used to help finance a $118,000,000 government-owned sector of the project in northern Ontario, which is such a sparsely settled area that it could not be privately financed. The loan was made after a bitter political fight in the Canadian Parliament.

Construction of the 575-mile Alberta-Winnipeg section was expected to get under way in July and must be completed within the near future, it is said, to meet deadlines in connection with the entire project.

MEANWHILE, however, Tennessee Gas Transmission's plans to take gas from Trans-Canada at Winnipeg (through a short connecting line at Emerson, on the Canadian border) have recently received an initial setback at the hands of an FPC examiner. Midwestern Gas Transmission, a Tennessee affiliate, had proposed to build a $103,000,000, 2,000-mile pipeline from Emerson to Portland, Tennessee. Four-hundred and eight million cubic feet of gas a day would be brought to customers in North Dakota, Minnesota, Wisconsin, Michigan, Illinois, and Indiana, half coming down from Canada and the other half coming up from Tennessee.

There has naturally been considerable opposition to this proposal from companies already serving midwestern states. Utilities with competing plans or applications include Natural Gas Pipeline Company of America and Chicago District Pipeline, both subsidiaries of Peoples Gas of Chicago; American Louisiana Pipe Line (controlled by American Natural Gas) which recently constructed a new line from the Louisiana Gulf coast to Detroit; and Northern Natural Gas.

FPC Examiner Hall did not reject the Midwestern proposal, but recommended further study by the commission of this and other plans to meet growing demands in the Middle West. He warned that the FPC could wait "only a reasonable time" to see whether the Trans-Canada venture would work out, for if this should fail the Midwestern proposal would necessarily fail along with it. The examiner also stated that the FPC may have to reconsider its present policy of preventing U. S. customers from being wholly dependent on Canadian gas, since many Minnesota and Wisconsin customers would be entirely dependent on gas from Canada under the Midwestern plan. Northern Natural Gas Company wants to extend its system in Minnesota to the Duluth-Superior area, which would be in competition with the Midwestern system.

IN addition to the major pipeline projects discussed above, some smaller plans are under way. Strangely enough, the South, where much of our gas originates, has neglected to service adequately several of its own states, the Carolinas and Florida. Two companies, Coastal Transmission Company and Houston Texas Oil

& Gas Corporation, placed their proposals for a Florida pipeline before the FPC July 9th. These plans are complementary, not competitive. Coastal proposes to build a transmission system from southeast Texas along the Gulf coast and across the Mississippi to Baton Rouge, where Houston Texas will take over. Houston would build a pipeline across the Gulf to a point near Miami. It is said that Florida can use over 500,000,000 cubic feet a day, which would include boiler fuel for Florida Power Corporation and Florida Power & Light. (The utilities now use imported oil for fuel.) Delhi-Taylor Oil Company is said to own all the stock of Coastal and 13 per cent of stock of Houston Texas.

In the Carolinas, three companies have been formed to try to obtain 40,000,000 cubic feet of gas daily from Trans-Continental Gas Pipe Line. They would spend $21,000,000 on new lines, while Transcontinental would spend $42,000,000 for this and other projects, according to applications filed with the FPC in June.

Florida already receives a little gas, and Maine and Vermont are the only remaining states not enjoying *any* natural gas. A former plan to run a pipeline from the Maine border to Portland has apparently languished and died.

Natural Gas Comes to the Northwest

On August 16th, natural gas began flowing from the San Juan basin of New Mexico and Colorado to Portland, Oregon, over the 1,487-mile line of Pacific Northwest Pipeline. When the $400,000,000 pipeline is linked with Canada, gas will also be brought down from the Peace river area in northern British Columbia and Alberta to supplement the U. S. supply. Three hundred and forty-three million cubic feet of gas per day will be brought from United States fields and about a year from now 303,000,000 cubic feet are expected to be received daily at the Canadian border from the West Coast Transmission Company, Ltd., of Canada. By this arrangement Pacific Northwest has about doubled its original capacity at an increase in cost of only about 20 per cent.

Portland Gas & Coke Company, one of the most aggressive utilities in the Pacific Northwest, on August 19th invited a big roster of out-of-town utility officials and others to join it in celebrating "Natural Gas Pipeline Completion Day." The company serves about 800,000 people in Vancouver and Washington, with 2,500 miles of mains. It has a very successful record of producing and selling manufactured gas—it has been one of the few prosperous utilities in that field—and it will continue to use its $12,000,000 oil-gas plant for peak shaving purposes (after conversion to 1,000 Btu gas) as well as for by-products. The latter last year accounted for one-third of the company's revenues, being marketed to producers of aluminum, synthetic rubber, plastics, calcium carbide, and ferrosilicon.

The company reports that industrial contracts are already signed or in prospect which will require delivery of two and one-half times as much gas as it sold all its customers last year. Industries which already have signed include a new glass factory, three large paper mills, an aluminum smelting and fabricating operation, a cement plant, woolen mill, malting plant, and laundry and cleaning firms. Another important market for gas will doubtless be in the processing and canning of fruits, vegetables, and sea foods. It is suggested that the aluminum industry might like to have a stand-by arrangement to use gas during periods of drought.

Even with manufactured gas the company had 27,000 heating customers at

the beginning of 1956, almost a 35 per cent saturation. With natural gas it expects to more than double domestic use in the next five years. It had been generally assumed that natural gas might have a tough fight because of competition with ultra-cheap electric power, much of it from big federal hydro projects. Residential consumption of electricity is about two and one-half times the national average, and it is used for heating, cooking, and year-round air conditioning. Nevertheless, in a 7-week sales drive Portland Gas & Coke reported the sale of nearly 1,000 new heating units.

While the electric utilities seem reconciled to losing some residential business to gas, they expect to gain offsetting benefits through the new industries which will be attracted to the area by natural gas, as well as the general stimulus to business activity in the area.

Public Ownership for Gas?

ALABAMA GAS CORPORATION has encountered a proxy fight over the issue as to whether some or all of the company's properties should be sold to municipalities. Two of the directors, Hugh Morrow, Jr., and Lewis J. Odess, have written a letter to stockholders proposing such sales. The management has refused to give these two directors a list of stockholders.

The other six directors, headed by Board Chairman Joseph Green, have also sent a letter to stockholders pointing out that Messrs. Morrow and Odess are municipal bankers, whose firms have been active since 1946 in promoting municipal and other publicly owned gas systems in Alabama and elsewhere in the South. The letter states:

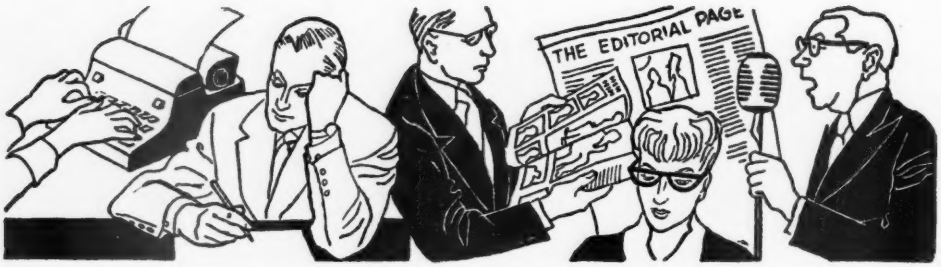
> The communication of Messrs. Odess and Morrow states that "Some of the municipalities who are presently being served by the operating systems of your company have indicated an interest in purchasing these systems. . . ." They fail to point out, however, that only two small municipalities of the forty-nine municipalities and communities served by the company's system have indicated to the company any interest in purchasing its properties. The interest of those two was expressed to the company in letters from a municipal bond dealer and an engineer who purported to represent these cities. . . .

RECENT FINANCIAL DATA ON GAS UTILITY STOCKS

Rev. (Mill.)			9/26/56 Price About	Dividend Rate	Approx. Yield	Recent Share Earns.	% Increase	Aver. Incr. In Sh. Earn. 1951-55	Price-Earn. Ratio	Div. Payout	Approx. Common Stock Equity
		Pipelines									
$ 4	O	Alabama-Tenn. Nat. Gas	19	$1.20	6.3%	$1.42Je	8%	17%	13.4	86%	37%
15	O	Commonwealth Nat. Gas .	30	1.40	4.7	2.74Je	9	X	10.9	51	37
16	O	E. Tenn. Nat. Gas	10	.60	6.0	.80Je	38	X	12.5	75	18
48	S	Mississippi Riv. Fuel	33	1.40	4.2	2.12Je	25	6	15.6	66	52
69	S	Southern Nat. Gas	36	1.80	5.0	2.75Je	47	3	13.1	65	33
200	O	Tenn. Gas Trans.	28	1.40	5.0	1.85Je	22	17	15.1	75	22
163	O	Texas East. Trans.	24	1.40	5.8	2.18Je	19	5	11.0	64	23
71	O	Texas Gas Trans.	23	1.00	4.3	2.09Je	28	D	11.0	48	27
75	O	Transcont. Gas P. L. ...	19	1.00	5.3	1.24Je	17	17	15.3	73	19
		Averages			5.2%				13.1	67%	
		Integrated Companies									
127	S	American Nat. Gas	69	$2.60	3.8%	$4.59Je	65%	8%	15.0	67%	35%
50	A	Arkansas-Louisiana Gas .	22	1.00	4.5	1.48Je	147	10	14.9	67	53

44	O	Colo. Interstate Gas	62	1.25	2.0	5.44Je	NC	45	11.4	23	35
304	S	Columbia Gas System ...	17	.90	5.3	1.53Je	41	3	11.1	59	44
8	O	Commonwealth Gas	7	(a)	4.0(a)	.26De	D51	D	—	—	72
10	A	Consol. Gas Util.	16	.90	5.6	1.83Jy	87	D	8.7	49	53
240	S	Consol. Nat. Gas	37	1.70	4.6	3.31Je	NC	O	11.2	51	70
178	S	El Paso Nat. Gas	53	2.00	3.8	3.85Je	82	O	13.8	52	22
40	S	Equitable Gas	28	1.50	5.4	2.39Je	24	4	11.7	63	32
15	O	Kansas-Nebr. Nat. Gas ..	35	1.60	4.6	2.61Je	35	3	13.4	61	32
88	S	Lone Star Gas	31	1.60	5.2	2.45Je	24	5	12.6	66	39
23	S	Montana-Dakota Util. ..	25	1.00	4.0	1.48Ma	10	25	16.9	68	30
21	O	Mountain Fuel Supply ..	27	1.20	4.4	1.50De	18	8	18.0	80	59
72	S	National Fuel Gas	20	1.10	5.5	1.68Ma	24	8	11.8	60	58
108	S	Northern Nat. Gas	47	2.20	4.4	3.49Je	20	26	13.5	63	34
37	S	Oklahoma Nat. Gas	27	1.40	5.2	2.21Jy	25	6	12.2	63	32
99	S	Panhandle E. P. L.	93	3.00	3.2	5.01De	18	16	18.6	60	32
11	O	Pennsylvania Gas	24	1.00	4.2	1.63De	D10	D	14.7	61	68
159	S	Peoples G. L. & Coke ...	157	8.00	5.1	13.28Je	11	6	11.8	60	40
31	O	Southern Union Gas	22	1.12	5.1	1.69De	28	15	13.0	66	34
215	S	United Gas Corp.	31	1.50	4.8	2.23Je	14	7	13.9	67	41
		Averages			4.5%				13.4	60%	
		Retail Distributors									
23	A	Alabama Gas	35	$1.50	4.3%	$2.45Je	29%	31%	14.3	61%	44%
43	O	Atlanta Gas Light	30	1.20	4.0	3.14Je	43	2	9.6	38	38
5	O	Berkshire Gas	15	.80	5.3	.97Je	111	31	15.5	82	37
4	O	Bridgeport Gas	29	1.50	5.2	2.66Je	29	73	10.9	56	44
4	O	Brockton-Taunton Gas ..	15	.70	4.7	.85De	30	42	17.6	82	36
55	S	Brooklyn Union Gas	35	2.00	5.7	2.95Je	13	5	11.9	68	47
1	O	Cascade Nat. Gas	10½	—	—	Def.De	—	—	—	—	41
33	O	Central El. & Gas	16½	.90	5.5	1.66Je	22	9	9.9	54	17
11	O	Central Indiana Gas	14	.80(b)	5.7	1.12Je	11	D	12.5	71	64
5	O	Chattanooga Gas	6	.30	5.0	.48My	71	14	12.5	63	43
61	O	Gas Service	24	1.36	5.7	2.50Je	37	O	8.6	54	38
6	O	Hartford Gas	39	2.00	5.1	2.50Ma	15	D	15.6	80	52
2	O	Haverhill Gas	20	1.20	6.0	1.77Au	44	14	11.3	68	55
15	O	Houston Nat. Gas	31	1.50	4.8	1.82*	D12	6	17.0	82	23
16	O	Indiana G. & Water	22	1.00	4.5	1.64Au	21	9	13.3	60	47
6	A	Kings Co. Lighting	16	.90	5.6	1.21Je	4	7	13.2	74	28
40	S	Laclede Gas	16	.80	5.0	1.27Je	32	2	12.6	63	36
4	O	Michigan Gas Utils.	19	1.00	5.2	1.31De	5	14	14.5	76	43
4	O	MidSouth Gas	12	.15	1.3	.72De	71	D	16.7	21	34
37	O	Minneapolis Gas	26	1.30	5.0	2.17Je	33	10	12.0	60	38
14	O	Mississippi Valley Gas ..	22	1.12(d)	5.1	1.98Je	26	—	11.1	57	28
5	O	Mobile Gas Service	25	1.00	4.0	1.39Je	D9	D	18.0	72	33
7	O	New Haven Gas	30	1.60	5.3	2.39De	7	17	12.6	67	63
10	O	New Jersey Nat. Gas ...	26	1.20(e)	4.6	2.11Ma	40	—	12.3	57	31
70	O	No. Illinois Gas	18	.80	4.4	1.48Jy	28	—	12.2	54	49
8	O	North Penn Gas	14	1.00	7.1	.83De	D33	1	16.9	120	57
183	S	Pacific Lighting	36	2.00	5.6	2.84Ma	10	33	12.7	70	44
15	O	Pioneer Nat. Gas	25	1.32	5.3	1.89Je	NC	19	13.2	72	53
13	O	Portland Gas & Coke	32	1.00	3.1	2.08Je	—	9	15.4	48	40
2	O	Portland Gas Light	11	.75	6.8	1.22De	13	—	9.0	61	25
8	A	Providence Gas	9½	.56	5.9	.59De	16	16	16.1	95	64
3	A	Rio Grande Valley Gas ..	3	.15	5.0	.26Je	—	9	11.5	58	63
3	O	So. Atlantic Gas	13	.80	6.1	.89De	12	D	14.6	90	35
9	O	South Jersey Gas	25	1.40	5.6	2.10My	30	23	11.9	67	52
24	S	United Gas Improve. ...	39	2.00	5.1	2.42Je	16	D	16.1	82	64
33	S	Wash. Gas Light	38	2.00	5.3	3.68Je	45	4	10.3	54	42
8	O	Wash. Nat. Gas	17	.40	2.4	.39Je	D26	—	—	100	67
6	O	Western Ky. Gas	13	.60	4.6	1.24Ma	NC	29	10.5	48	35
		Averages			5.0%				13.1	67%	

A—American Stock Exchange. O—Over-counter or out-of-town exchange. S—New York Stock Exchange. *July, 1955. Ja—January; F—February; Ma—March; Ap—April; My—May; Je—June; Jy—July; Au—August; S—September; O—October; N—November; De—December. (a)—Paid 4 per cent stock dividend. (b)—Paid 10 per cent stock dividend. (d)—Paid 25 per cent stock dividend. (e)—Paid 2 per cent stock dividend. NC—Not comparable. D—Decrease. X—Deficit in 1951.



What Others Think

The FPC at Work

THE U. S. Supreme Court's decision in the Phillips Petroleum Company Case was—for the Federal Power Commission, as well as for the newly regulated producer segment of the natural gas industry—"probably the greatest reversal since Serutan," according to FPC Chairman Kuykendall.

None the less, the FPC chairman has been able to take an optimistic view of the succeeding period, down to the present, which has "tried men's souls," as they have struggled to cope with the court-added regulatory burdens, involving manifest problems of adjustment within and without the commission.

In fact, Chairman Kuykendall devoted a major portion of a recent speech to members of the Independent Natural Gas Association of America to an explanation of his personal belief that taxpayer money invested in federal regulation of the natural gas industry is paying dividends to the industry as well as to the consumer.

The advantages of FPC regulation to the regulated industry, the FPC chairman felt, have generally been taken for granted, if recognized at all. They have too often been overlooked during "the rather turbulent twenty-seven months since the Phillips Petroleum Case was decided."

Out of FPC's total appropriation for the fiscal year ending June 30, 1956, the commission spent about $2,133,000 on natural gas regulation. The questions posed by Chairman Kuykendall were: What did the regulated companies receive for this money, and how wisely did the commission spend it?

HE noted, at the outset, that FPC statistics show interstate natural gas pipeline companies have not been deterred by regulation, though under FPC jurisdiction since 1938, but have prospered. In 1938, according to American Gas Association figures, total revenues of the natural gas industry were only about $406,000,000 as compared with $3 billion in 1955.

Interstate shipments of gas have climbed from 636,000,000 cubic feet in 1938 to 4.63 trillion cubic feet in 1955. To point up the growth in the industry, the speaker contrasted the four certificates, covering 51 miles of pipeline and 3,560 horsepower in compressor capacity, issued in the year ending on June 30, 1953, with the 164 certificates authorizing 4,357 miles of pipeline and 254,950 compressor horsepower estimated to cost $461,000,000, of the most recent fiscal year.

The FPC chairman felt such figures show:

. . . that the natural gas industry has had a sharply accelerated growth in the eighteen years since the enactment of the Natural Gas Act. It is now reported to be the sixth largest industry in the United States, and undoubtedly it is one of the nation's most important. Furthermore, it is one that has great appeal to investors. There are, of course, many reasons for this investor appeal, but I believe that one of the important ones is the general confidence in the certificate authorizations issued by the Federal Power Commission, and in the assurance that the rates of the interstate pipeline companies are under the surveillance of the commission with an accompanying stability in rate of return.

To place in perspective current FPC operating costs and "housekeeping" arrangements, Chairman Kuykendall stated that in June of 1938, the month the Natural Gas Act was approved, the commission had a total of 461 employees. Employment hit an all-time peak, at 931, in 1948, dropping to 631 by June, 1953. At the time of the Phillips decision, in June, 1954, the commission had 661 employees, a total that mounted to 720 by the end of fiscal 1955. Thus, the speaker stated, there has been no sharp upsurge in commission man power to correspond to the much increased work load. The number of natural gas certificate applications has increased 667 per cent since 1953, compared with a rise of only 13 per cent in man power for this activity. Gas rate filing climbed 549 per cent above 1953 compared with a 236 per cent increase in man years, and gas rate cases were 77 per cent above 1953 with only a 16 per cent increase in man years, Chairman Kuykendall continued. FPC's total appropriation of $4,900,000 for the 1956 fiscal year compares with $4,085,700 for fiscal 1953, when it was at one of its recent lowest levels, and part of this increase was absorbed by the federal employees' pay raise approved by Congress in 1955.

Analyzing commission expenditures for the current fiscal year, the speaker found that about $575,000 was spent on certificate work; $1,444,000 on gas rate matters; and $114,000 on other natural gas activities. Thus a total of approximately $2,133,000 was expended on gas regulation. Independent producer certificate and rate work accounted for $733,000 of this, he stated. Kuykendall added:

> It is obvious that, in the field of natural gas regulation, the budgetary and man-power increases have not remotely compared with the rise in work load. This is due, in part, to the fact that a substantial portion of the increase in work load consisted of routine applications. However, we have resorted to numerous simplifications and short cuts in procedures, and have concentrated on improving our internal organization to help produce these very substantial manpower savings. We are aware that further staff additions are necessary, but we are certain that any rise in the number of personnel will in no way match the increase in work load and production. The figures I have cited show concretely, I believe, that the Federal Power Commission has not been and is not engaged in "empire building," but rather that it has concentrated on finding ways of getting its work done faster with no sacrifice in efficiency.

Chairman Kuykendall pointed out that the commission has had difficulties in recruiting qualified personnel to carry out its added responsibilities on rate and certificate matters. Facing an acute shortage of qualified engineers and accountants in recruiting new personnel, the commission has none the less rejected suggestions that

it hire such personnel more or less indiscriminately so that a large staff could rapidly be built up. This approach was deemed not to be in the public interest, the speaker said, and the FPC recruiting program has been, and is, to add a limited number of qualified people who by working with experienced personnel will acquire the necessary "know-how." New employees are carefully screened and interviewed, Chairman Kuykendall remarked, both for the protection of the commission and the regulated companies with whom they may work, in view of the fact that the industry must have confidence in the qualifications, as well as the integrity, of commission staff members.

CHAIRMAN Kuykendall would make no predicition as to when FPC could overcome the backlog which it faces. That he said depends on many now unknown factors, including the commission's success in obtaining qualified new personnel, the volume of work it will have to handle, and the law which will be applicable thereto. He did say, however, that for regulatory dollars spent in a certificate case, natural gas companies, their investors, and the wholesale purchasers can be assured that FPC has carefully examined the proposals put before it before granting its approval. It must find the gas supplies available and the existence of a sufficient market for the gas; that the facilities have been shown to be physically adequate and the project economically feasible; and that the construction can be financed. It must be able to assure the consuming public that the contemplated services of the pipeline companies will be rendered at reasonable charges.

According to the FPC chairman:

> By being thus assured that an experienced federal agency, representing the public interest, has taken a thorough look at all aspects of the proposals, everybody concerned, from the producer through to the ultimate consumer of the gas, can plan ahead with confidence in the soundness of the project.

Similarly, in rate increase suspension cases, generally marked as long-drawn-out affairs which begin with FPC staff field studies of company books and operations and are followed by long hearings, often slowed down by numerous intervening purchasers opposing any move toward higher rates, it is the commission's job to determine that every dollar of the proposed increase is justified. At the same time, according to Chairman Kuykendall, the commission must allow the natural gas company that amount to which it is justly entitled. Taking into account the tremendous increase in work load experienced by the commission, it was the chairman's belief that its regulatory dollars are doing more and more work, giving what he considered to be "a very fair return on the nation's investment in the Federal Power Commission."

TURNING at this point to "the particular problems of the independent producers," Chairman Kuykendall said:

> . . . From time to time, I hear the complaint that the commission has not told the producers just what they must do in order to substantiate a rate increase. Much of this criticism seems to presuppose that the commission possesses the powers which Congress itself possesses. This is not true of course. We possess only the powers which Congress has delegated to us. The difficulty lies in determining what powers and what latitude we have in fixing independent producers' rates by virtue of the Natural Gas Act. This is a legal problem, on which the courts, and not the Federal Power Commission, will have the last word.

"WELL, BOYS, THAT TAKES CARE OF BUTCH."

In other words, serious and difficult legal problems, not routine administrative decisions, face the commission. The natural gas industry has available to it legal talent of the highest order. I do not believe it would be unfair to the commission staff lawyers and to the members of the commission to say that the gas-producing industry has many lawyers retained whose legal ability is at least as great as that of the commission and its staff.

If these able lawyers on our staff and in industry continue to present their legal contentions in an intelligent and capable manner, the commission will be greatly aided in arriving at decisions which may stand, after review by the courts. That is the way that these difficult legal questions can be properly resolved.

There is nothing to be gained by any lawyer advocating unsound legal contentions, which, if accepted by the commission, would surely be reversed by the courts.

Chairman Kuykendall said it was grati-

fying to observe that most independent producers, after acquiring familiarity with the commission's duties and purposes, have reversed their first and instinctive attitude against permitting disclosure of information, and are now actively cooperating with the commission's staff in expediting the gathering of pertinent data. But he also made a plea for additional cooperation from some companies which FPC has felt are using delay-causing procedures for protecting the privacy of their records. The speaker urged procedures permitting FPC staff members to obtain necessary records as speedily as possible, without jeopardizing proper company interests.

Chairman Kuykendall concluded his remarks by expressing his confidence that natural gas industry problems will be settled, despite temporary delays or possible mistakes, by the orderly, lawful, and constitutional processes of the various branches of our government.

Natural Gas as Irrigation Pump Fuel

"THIS is Utopia, as far as irrigation is concerned!" writes Homer Fine, managing editor of the *Nebraska Farmer*, August 4th issue, quoting a resident of Hildreth, in the south-central part of Nebraska, where the stampede to irrigation is reminiscent of an old-fashioned gold rush. He quotes the same farm implement dealer as saying "we'll eventually have 15,000,000 acres under irrigation here in Nebraska, instead of the present 1,600,000 acres."

The stampede to irrigation and the sudden enthusiasm for irrigation in an area that had been an irrigation leader in the state for years stems from two factors, according to Fine. First, it has been dry in the southern part of Nebraska for the past several years. But one of the prime causes for the spurt of interest in irrigation has been the development of farmer-built natural gas distribution lines to bring fuel to irrigation pumps and to the smaller towns, rural schools, and churches in the area.

As described by the *Nebraska Farmer* writer, the pipeline development got under way in the Wilcox-Hildreth area of Nebraska when a committee of local citizens, backed by local chambers of commerce, met with officials of the Kansas-Nebraska Natural Gas Company to explore the possibilities of bringing natural gas from main distribution lines to irrigation wells.

Since that time, he reports, the idea of farmer-built project lines has grown like Topsy. At present, 20 counties in Nebraska and four in Kansas have irrigation line projects. The total number of natural gas meters on irrigation wells in the 20-county area of Nebraska is 1,594. That required a total of 370 miles of farmer-built distribution pipeline as well as 148 miles of service lines. In the entire Kansas-Nebraska district, the total number of irrigation wells serviced by natural gas has reached almost 2,000. Nebraska counties participating include Lincoln, Dawson, Buffalo, Hall, Hamilton, York, Valley, Sherman, Frontier, Gosper, Phelps, Kearney, Adams, Clay, Fillmore, Red Willow, Harlan, Franklin, Nuckolls, and Thayer.

The projects are developed in the following manner, according to Fine:

> A group of irrigation farmers, farmers who plan to drill wells, and often townspeople, decide they want to build a distribution line. First off, they must be economically close to a natural gas pipeline. Secondly, they appoint a

committee to collect information on the number of wells, proposed wells, and dwellings to be serviced, and to work with the gas company in working out details of the project.

Costs must be apportioned among the farmers and towns, Fine continues, if towns are included in the project. For instance, the pilot project, including the town of Wilcox, cost the co-operators $12,000. The town put up $5,000 and irrigation farmers the rest. The cost of construction of the rural distribution lines from the transmission line is paid by the farmers, who also provide free right of way.

Kansas-Nebraska builds the rural lines for the farmers on an actual cost, non-profit basis.

After construction, Fine states, title to the lines is vested in the company, which assumes full responsibility. For a period of five years, new customers connecting to these project lines are required to make an equitable contribution which is rebated on a pro rata basis to all those who have previously contributed.

The reporter finds that many of the irrigation farmers have received in rebates a substantial amount of their initial contribution. One farmer contributed $1,500 as his share of the project that brought natural gas to his irrigation well. It cost him another $100 to change over to use natural gas. But the conversion paid for itself within a year and a half. Pumping from his 204-foot well at 700 gallons per minute with a lift of 165 feet cost the farmer $1,100 in 1953. Last year, watering the same acreage but pumping more total hours cost $248 on natural gas. The farmer figures he was formerly paying 70 cents an hour to pump irrigation water, as opposed to the present estimate of about 15 cents an hour.

Another farmer estimates the shift over to gas cut his pumping costs from 42 cents an hour to about 15 cents.

As to the recent irrigation development, Fine quotes S. D. Whiteman, president of Kansas-Nebraska Natural Gas, as saying:

> We can sell gas in the summer at a very favorable rate because the load on our pipeline system is at a minimum. These summer sales help pay for the maintenance and operation of the system and, in turn, help us keep our rates to winter users at low figures.
>
> But, far more important, we feel that anything that is good for the Great Plains is good for us, and certainly sound irrigation practices can contribute immeasurably toward stabilizing our agricultural economy. When this region prospers, everyone in it prospers. It's as simple as that.

Gas-fueled irrigation is having its effect on towns as well as farms, Fine declares. Wilcox, mentioned above, was one of six Nebraska communities which have received gas service because of irrigation projects. These towns have co-operated with irrigation farmers in building their own distribution lines. A Wilcox banker points out that "irrigation stabilizes not only the income of the farmer, but of the entire community . . . In a very dry year, a farmer will have 'nothing' or 'something,' depending on whether or not he has an irrigation well." Fine reports that a number of farmers who had prospects of deeper than average wells or less than average water production simply did not drill until gas lines were available.

He cites a statement by a hardware store owner that one of his farmer customers with two irrigation wells on his

farm now spends six times as much in his store as he was able to before irrigation. Irrigation farmers were able to pay cash, while dry-land farmers were forced to resort to time payments. The town's businesses are generally looking up, the writer states, and for the first time in years, new homes are being built. A $24,000 three-room addition was built onto the town's school, and more expansion is expected.

ACCORDING to A. J. Sigel, agricultural representative for Kansas-Nebraska Natural Gas, the project lines in Nebraska are from one to 36 miles in length, with an average length of eight to 12 miles. There was a 200 per cent increase in the use of gas for irrigation in 1955 over 1954 and interest is still growing. Some of the lines have been extended three times. Sigel figures the average acreage irrigated per pump at 100, with some doing a bigger or smaller job. At that estimate, there would be almost 160,000 acres of Nebraska soil being watered under these projects, the writer calculates.

Drillers were working around the clock this past summer putting down new wells. Irrigation systems of all types were installed, bringing more and more acres into production. "The beauty of it is, that this is all being done with individual initiative and co-operation," the author remarks, in a concluding statement.

The Investment Risk of Gas Production

"DEPENDABLE sources of supply—efficient transmission facilities—a large and ready market; these are basic essentials in the gas transmission industry.

"First in order is the availability of sufficient amounts of natural gas to meet constantly expanding demand, and to the men who engage in the expensive and risky business of finding new gas supplies we give great credit for their indispensable contribution to the success of the industry as a whole. These are the 'wildcatters' —drillers who sink drill bits in unexplored areas with the knowledge that eight out of nine such wells, on the national average, turn out to be dry.

"The average cost of drilling a 'wildcat' is well over $100,000, and the average depth reached by the driller is over 4,000 feet. There is no such reality as a 'sure thing' for the 'wildcatter.' He knows it, but keeps on trying. His risk is the nation's gain, because without the chances producers take we would not have the existing assurance of continuing supply. Every year more gas is discovered to satisfy increasing need, but it comes from those one out of nine wells—one producer out of nine tries on the average.

"In Texas Eastern we deal with a number of producers who have known feast and famine; whose persistence finally paid off, and without whom the entire nation would be much poorer. May they and future pioneers like them continue to exemplify the forward look of our industry. As each looks forward to hitting pay sand on the next try, so can we look forward to many tomorrows of better living made possible by an abundance of natural gas."

—GEORGE T. NAFF,
President, Texas Eastern Transmission Corporation.

The March of Events

FPC Affirms Examiner's Decision

To conform with state public utilities commission requirements, the Ten- its presiding examiners ruling that 17 natural gas sales by Continental Oil Company, of Houston, Texas, are subject to FPC jurisdiction, and granting a certificate to the company in each case.

The decision was filed by Presiding Examiner Samuel Binder last July 13th, and exceptions to it were filed by Continental. The decision denied petitions filed by Continental in connection with each of the sales seeking declaratory orders to the effect that they are not subject to FPC regulation and that the company is not a "natural gas company" within the meaning of the Natural Gas Act. In the alternative, Continental sought certificates authorizing the sales.

The casinghead gas involved in the filings is produced from gas leases in Oklahoma and New Mexico and is sold to Warren Petroleum Corporation and Magnolia Petroleum Company.

Connecticut

Gas Pipelines Altered

To conform with state public utilities commission requirements, the Tennessee Gas Transmission Company recently reported to the commission that it had altered 16 pipelines. The company has dug up the high-pressure transmission lines at certain road crossings in the Stamford area and placed them at a greater depth for public safety.

At the time the lines were laid, the pipeline route was not affected by public safety requirements for populated areas. However, widespread real estate developments in the area resulted in many road crossings built over the transmission lines. The commission called the company's attention to the commission regulations about road crossings and the gas firm agreed to lower the pipelines to a greater depth at new crossing locations.

Illinois

Lower Electric Rates Ordered

Central Illinois Public Service Company was ordered by the state commerce commission to reduce its electric rates by $1,100,000 a year.

The rate cut, effective as of September 15th, will save residential customers $650,000 a year and commercial users $450,000. The reduction affects customers in more than 500 communities.

Court Upholds Municipal Utility Tax

CONSTITUTIONALITY of an Illinois law permitting municipalities to levy a 5 per cent tax on gross receipts of public utilities was upheld by the state supreme court recently. Peoples Gas Light and Coke Company had challenged the law on the ground that a Chicago ordinance imposing the levy did not apply uniformly to different types of utilities.

Under terms of the 1955 state enabling legislation, which was part of a program designed to provide financial relief to cities, Chicago last January 1st levied gross receipts taxes of 5 per cent on Peoples Gas, 2 per cent on Illinois Bell Telephone Company, and 1 per cent on Commonwealth Edison, which the utilities passed on to their customers.

Pending final outcome of the Peoples Gas litigation, the tax funds collected (5.6 per cent for Peoples Gas, 2.4 per cent for Illinois Bell, and .92 per cent for Commonwealth Edison) were kept in special funds by the three companies.

Kentucky

Suppliers Want Rate to New Users Uniform

NATURAL gas suppliers recently suggested to the state public service commission that a uniform rate be charged customers who can receive service under a new Kentucky law. The commission took the suggestion and others under advisement, as well as a tentative set of rules and regulations, after meeting with officials of six gas companies.

Under the law, companies obtaining gas from wells in the state must provide service to two types of customers if it is requested: (1) owners of property over which any producing wells or gas-gathering pipeline is located; (2) owners of real estate whose property and point of desired service is located within half an air mile of a company's well or pipeline.

The commission is directed to supervise construction of service lines and rates to be charged for service. Customers must bear the construction cost.

Tennessee

Power Plant Bond Offering Planned

PLANS of the Memphis Light, Gas and Water Commission to sell about $155,000,000 of revenue bonds soon after November 1st, to finance its new municipal electric power plant, were disclosed recently by its president, Major Thomas H. Allen, following a discussion of the plant's feasibility report with members of the Memphis city commission.

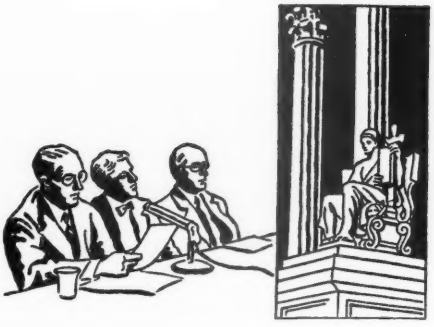
Major Allen said the cost of the plant itself will approximate $121,000,000 and the additional money will be for modification and expansion of the light, gas, and water distribution system.

Washington

Power Dam Project Advocated

THE utilities committee of the Seattle city council last month recommended that city apply to the Federal Power Commission for a license to build a $100,000,000 City Light dam site on the Pend Oreille river near the Canadian boundary.

Engineering and geological studies have been under way since 1954.



Progress of Regulation

Trends and Topics

Plant Acquisition Adjustments and the Rate Base

A RECENT decision by the Pennsylvania commission again raises the question as to how an amount representing "acquisition adjustments" should be treated in fixing a rate base. Under accounting rules the amount paid for plant in excess of original cost to the company first devoting it to public use is placed in a plant acquisition adjustment account. Such amounts represent prudent investment resulting from arm's-length bargaining. Questionable payments, such as those based on "write-ups," are placed in another account.

Pennsylvania Decision

The Pennsylvania commission, in a decision involving the Pennsylvania Power & Light Company (reviewed in PUBLIC UTILITIES FORTNIGHTLY, October 11, 1956, at p. 639), considered evidence as to book cost, original cost, and reproduction cost. It made no findings of measures of value based on book cost, stating that all measures of value at price levels above original cost inherently include the increment above original cost and presently contained in Account 100.5 (Plant Acquisition Adjustments). In giving consideration to such measures of value (in addition to the original cost measure of value), the commission said, it was giving such consideration to the unamortized balance in Account 100.5 as was consonant with the opinion of the superior court in the Harrisburg Steel Corporation Case (7 PUR3d 609).

The court had before it a dispute over amortization of Account 100.5, and decided that there was no reason why the "intangible values" represented by the excess over original cost should not remain permanently on the books without being charged as an expense to ratepayers. The court also said that except to the extent that the "intangible values" contribute to the fair value of the whole, the ratepayers cannot be compelled to pay a return on the investment or restore the "excessive price paid."

Purchase Price as a Factor

Original cost to the first owner may be different from prudent investment;

and, except in the case of a recent acquisition, reproduction cost is likely to be quite different from both of those figures. Hence, the inclusion or exclusion of acquisition adjustments reflects a commission's views on these various measures of value for rate-making purposes. Purchase price has been given very little weight in rate base determinations, but it has not been wholly disregarded.

The price paid for properties acquired from another company, according to the Rhode Island supreme court, is not necessarily the original cost for rate-making purposes. Although it is a relevant factor, it is not an exclusive or final test of value (2 PUR3d 306). Market value, as noted by a federal court in the Capital Transit Company Case (11 PUR3d 146), may under certain circumstances have a bearing on the determination of a rate base by the original cost standard.

The fact that present stockholders acquired property at a price lower than its original cost, according to the New Jersey commission, should be given little weight in calculating a rate base when the acquisition price is not representative of the fair value of the property (91 PUR NS 33). A federal court held that the term "invested capital" as used in a statute empowering a city to fix utility rates meant the initial investment regardless of subsequent changes in ownership (76 PUR NS 10).

Exclusion of Acquisition Adjustment

The acquisition adjustment account, according to the Kentucky commission, should not be included in the rate base when the record fails to show that this item represents value (75 PUR NS 1). The West Virginia commission did not permit the inclusion of the unamortized portion of the difference between original cost of acquired property and the price paid for it where there was nothing to show that the property was worth the price paid for it, particularly where the company had made no deduction for depreciation or loss in value by reason of age and use (98 PUR NS 317). A company was not allowed by the Louisiana commission to include the excess of purchase price over original cost in its rate base where the amount had previously been written off to surplus and the amortization of that amount, if it had been started at the date of purchase, would long since have been completely written off the books (7 PUR3d 566).

The California commission ruled that the unamortized balance of plant acquisition adjustments should be rejected as an element of the rate base where an original cost rate base was being used (6 PUR3d 161). The same principle was approved in Colorado (1 PUR3d 129); Florida (80 PUR NS 161; 92 PUR NS 335; 99 PUR NS 129); Illinois (99 PUR NS 361; 7 PUR3d 493); and Washington (100 PUR NS 309).

Recognition of Acquisition Adjustment

Acquisition cost may influence rate base determination either by reducing or increasing the figure. Arkansas decisions serve as an illustration. The Ar-

kansas commission, in a case where original cost exceeded acquisition cost, ruled that an amount in plant acquisition adjustment account representing the estimated original cost in excess of the cost to the company should be excluded from the rate base (94 PUR NS 97). The same commission, in the Arkansas Louisiana Gas Company Case, ruled that a utility may include in its rate base the amount remaining in Account 100.5 when it represents the difference between the price paid for property and a lower original cost to the party first devoting it to public use (97 PUR NS 67).

In a recent decision, the commission stated the principle that the unamortized portion of a gas company's plant acquisition adjustment, representing the difference between the price paid in arm's-length transactions and the original cost of property to the party first devoting it to public service, should be allowed in the rate base where customers have contributed nothing towards earnings in excess of an allowable rate of return from which the company could have recouped the balance and the acquisitions were of material and continuing benefit to customers (10 PUR3d 407).

The Georgia commission has included the unamortized balance of plant acquisition adjustment in an investment rate base (91 PUR NS 97). When prudent investment was approved as the rate base, according to the Georgia commission, that investment included plant acquisition adjustment balances incurred at arm's length in the acquisition of property (8 PUR3d 487). It might be agreed that the excess over original cost represented anticipated earnings and that later a rate increase might be sought to obtain additional earnings on the adjustment, but the company had made no attempt to do this. It had sought higher rates to cover higher operating costs. The commission, therefore, concluded that the investment was not imprudent.

The Virginia supreme court of appeals, upholding a commission order, held that an amount representing plant acquisition adjustments, less reserve for amortization of such adjustments, being the amount paid for plant as the result of arm's-length bargaining in excess of original cost of plant when first devoted to public use, was properly included in the rate base (8 PUR3d 120). The Virginia commission had adopted the view that, since the amount paid to acquire property represented a prudent investment for the benefit of customers and the utility, the utility should be allowed to earn a return upon it (9 PUR3d 225).

Review of Current Cases

Court Upholds FPC Denial of Permission for Independent Gas Producer to Abandon Service

J. M. Huber Corporation, a producer of natural gas, according to a decision of the federal circuit court for the third circuit, is a natural gas company within the meaning of the Natural Gas Act and its facilities, including a "T" shaped control system, used to deliver gas to Northern Natural Gas Company for

interstate sale, cannot be abandoned without the consent of the Federal Power Commission.

The situation is described in a decision by the federal district court in Federal Power Commission *v.* J. M. Huber Corp. (1955) 10 PUR3d 1, where an injunction to restrain abandonment of the sale of gas was granted pending a commission decision on abandonment.

Following the Supreme Court decision in the Phillips Case (3 PUR3d 129), Huber filed an application for a certificate under § 7(a) of the Natural Gas Act covering its sales to Northern. It also filed its contract with Northern as a rate schedule under § 4(c). The company, however, protested against the exercise of commission regulation.

Huber, prior to a hearing, filed a "withdrawal" of its application for the certificate, stating that if it was not allowed, it wished to amend its application setting out that it was not willing to do the acts or perform the service proposed and was not willing to conform to the provisions of § 7(e) and the requirements, rules, and regulations of the commission thereunder. Huber stated that upon denial of its application it was willing to cease delivering gas to Northern. Following completion of the hearings, Huber filed a withdrawal of its notice of cancellation of the rate schedule. It stated that it was taking this action because it had erroneously assumed its sale to Northern was within the jurisdiction of the commission.

Operations Subject Producer to Regulation

The Phillips decision, said the court, made it clear that Huber was a natural gas company directly within the jurisdiction of the commission by reason of its sale of natural gas to Northern, admittedly a sale in interstate commerce of natural gas for resale. The company, according to the court, seemed to have acceded to the jurisdictional view by its attempt to cancel the contract and in so doing it had recognized the right of the commission to control the price of the gas. The cancellation maneuver, said the court, was not justified and for its own purposes in no way detracted from Huber's plain acceptance of the authority of the commission.

The 1942 amendment to § 7(c) prohibited gas companies from engaging in transportation or sale of natural gas without a certificate. There was a "grandfather clause" as to companies already engaged in that business. The commission declared its jurisdiction over independent producers after the Phillips decision in 1954.

The court declared that the jurisdiction over a natural gas company conferred by § 4(b) of the act does not depend on whether that company fulfills its obligation under § 7(c) to obtain a certificate. There was said to be nothing in § 7(c) or any other part of the act giving the slightest credence to that "strange conception" of the commission's authority. Huber was selling gas to Northern in 1942 and continued to do so through 1954 and down to and including the present time.

The commission's jurisdiction over independent producers, said the court, was present in the act throughout the entire period, although it was not until the Supreme Court decision in the Phillips Case that the commission attempted to exercise such jurisdiction. The jurisdictional sections of the act did not rely upon the certificate provisions, and the company's unwillingness to accept a certificate "offers no real problem." Huber's "attempted defiance of the commission's rightful exercise of its authority" was said to be of no importance.

Permission to Abandon

An attack upon the power of the commission under § 7(b) to prevent Huber from abandoning the Northern agreement as contrary to the Fifth Amendment was unsuccessful. The company based this on the statement that it was unwilling to undertake the obligations of a regulated natural gas company in connection with its production, gathering, and disposition of gas from the leases involved. The court said that in the light of the Phillips opinion the argument came too late. It was firmly settled that the company's business included the sale of gas in interstate commerce for resale and so was controlled by the commission. Congressional authority to regulate interstate commerce in natural gas, said the court, includes authority to regulate abandonment of sales and of the facilities for sales. Commission control of sales cannot be nullified by an independent producer's abandonment of those sales at will.

Huber had voluntarily entered into its contract with Northern and although the agreement was prior to the statute, control legislation, including the abandonment clause, had been introduced the previous year. A jurisdictional escape clause in the agreement strongly implied that the parties were alert to possible future express regulation. The public had relied on the service through the years and was entitled to its fair continuance. To abandon it, there must be commission approval. *Huber (J. M.) Corp. v. Federal Power Commission, No. 11,799, August 31, 1956.*

FPC Reaffirms Decision on Nonexempt Facilities of Independent Natural Gas Producer

CONTINENTAL OIL COMPANY sought unsuccessfully to change the determination by the Federal Power Commission regarding facilities of independent gas producers for which certificate authorization is required. The commission, in its earlier decision (14 PUR3d 225), had decided that § 7(c) of the Natural Gas Act, in referring to "facilities therefor" and "such facilities" for jurisdictional transportation or sale of natural gas, reasonably applies to those facilities which serve the function of effecting the interstate sale or interstate transportation as the case may be.

The company said that the commission's determination was vague, indefinite, and ambiguous; that it offered no certain principle or criterion by which it could be determined whether or not any given independent producer facilities must be certificated; and that a definite principle is essential to the producing segment of the natural gas industry since everyday operations necessitate the operation and removal of facilities and procedures must be established by the affected parties to insure that their essential operations can be lawfully carried out.

Needless to say, said the commission, it was desirous that its decisions be as clear and certain as the circumstances surrounding the extension of regulatory authority into this new field involving independent producers will permit. The commission, however, thought that Continental overstated the perplexities which arose from the order. This belief, said the commission, was reinforced by the recent decision of the court of appeals for the third circuit in J. M. Huber Corp. *v.* Federal Power Commission, filed August 31, 1956 (reviewed in this issue at p. 723). The court upheld a commission finding that

Huber's T valve system, its valves, and the pipe were facilities used to effect the sale of natural gas to Northern Natural Gas Company.

Facilities Upstream from Point of Sale

The commission rejected an argument that all of Continental's facilities lying upstream from the point of sale to United Gas Pipe Line Company were used in the production or gathering of gas and were thus "production or gathering" facilities exempt from commission jurisdiction under § 1(b). The company's argument that its sales were not sales in interstate commerce, since the sales were made on the same leases where the gas was produced and were made before gathering (by United) had commenced, was also rejected.

The commission described the movement of natural gas and hydrocarbons from wells, to a heater, to a separator, and from there partly underground to an adjustable choke, and thence to the pipeline of United. It was noted that from the point of delivery to United the gas was moved through United's line a short distance to its meter run and meter. It then was moved to a common point where it was commingled with gas from other wells, and from that point it moved to a gasoline and dehydration plant owned by United, from which it entered United's main transmission line.

Facilities Used to Effect Interstate Sale

The fact that some part of the facilities described served the function of producing or gathering natural gas could not be denied. More pertinent for present purposes, however, said the commission, were those facilities which served the function of effecting the sale. The commission found that these comprised a line extending from the separator to the point of delivery to United. This line was immediately and directly concerned with carrying out or consummating the sale, as distinguished from producing the gas or gathering it. That was its use and service and its distinctive function, and, accordingly, under § 7(c) it must be certificated. The other facilities, including the vent line, the heater, and the separator, need not be certificated.

The commission, therefore, reaffirmed its earlier decision that the facilities therein referred to in the various dockets were subject to the certificate provisions of § 7(c). These comprise the facilities downstream from the separators to the points of interconnection with the lines of United, except for the vent lines, comparable to those described. Included also was a compressor involved in the sale of gas to United from wells in another field. Pressure from these wells was not sufficient to enable the flow of gas into United's line, and the compressor, which was located downstream from the separator and only a few yards from the point of delivery to United, effectuated this purpose. Thus the compressor served the function of effecting the sale of this gas to United.

The commission, in its earlier order, had not mentioned adjustable chokes located downstream from the separators and in the vicinity of the points of delivery. They, however, appeared to serve as a final control on the volumes of gas delivered to United, and in view of their function and relationship to the sale, according to the commission, they should also be certificated.

Case-by-case Determination

In view of the wide variation in practices followed and facilities employed by independent producer natural gas companies, any all-inclusive definition of the facilities which "serve the function of ef-

fecting the sale" under § 7(c) would, in the opinion of the commission, be impracticable and imprudent. The matter can only be determined on a case-by-case basis.

It might be said, however, that the question of what are the facilities of an independent producer which require a certificate as sales facilities is to be determined on a consideration of the function of such facilities and their relationship to the sale. A consideration is the "use and service" of the facilities. Their directness and immediacy, physical or otherwise, to the sale are also factors. Where facilities meet these requirements and serve also some other function, they are still perforce "sales facilities." *Re Continental Oil Co. Docket Nos. G-6349—G-6352, Opinion No. 293, September 20, 1956.*

Federal Court May Not Enjoin Municipal Regulation of Local Gas Sales

THE United States court of appeals held that where a federal court lacks jurisdiction over the subject matter in litigation, it should not make a decision on the merits, even though it correctly dismisses the case for lack of jurisdiction. The lower court had so acted in actions by an interstate natural gas company to enjoin cities from preventing it from raising rates for local sales to consumers.

Even though Congress could have occupied the entire field of regulation of interstate transportation and sale of natural gas, it was not required to do so. In enacting the Natural Gas Act, it clearly exempted local distribution of natural gas from the provisions of the act, leaving regulation to local supervision and control.

The appellate court held that even if the rates fixed by the municipalities under state law were confiscatory and deprived the company of its property without due process of law, the company had a plain, speedy, and effective remedy in the state courts. Therefore, the federal court had no jurisdiction and should not have passed on the merits. The case was remanded with directions to vacate and set aside the findings, conclusions, and judgments and to enter judgments dismissing the actions for lack of jurisdiction. *Kansas-Nebraska Nat. Gas Co., Inc. v. City of St. Edward, 234 F2d 436.*

Depreciation Expense Increased by Amount Reflecting Liberalized Tax Depreciation

THE Wisconsin commission, in harmony with a previous order (12 PUR3d 254), authorized Milwaukee Gas Light Company to include in its accounts, in addition to depreciation at the straight-line depreciation rates certified to the company by the commission, an amount of depreciation equal to the effect on federal income taxes of using the liberalized depreciation provisions of § 167 of the Internal Revenue Code of 1954 instead of the depreciation indicated by the certified rates.

The commission reaffirmed its view that the company would have the cash benefit from the tax reduction but this cash could not be paid out in dividends but would have to be retained in the busi-

ness and thus be available for construction or other proper corporate purposes. Rates payable by customers would initially be unaffected by the procedure, although, in the long run, they would receive the benefits flowing from a lower rate base. The customers would, in effect, pay more rapidly for the depreciation of the plant but would receive *pro tanto* credit through reduction in the rate base.

The company also requested that the commission accept for rate-making purposes the depreciation expense allowance comprised of the sum of the depreciation at the certified rates plus the additional amount referred to above. The commission said that this was answered by § 196.09, Statutes, which provides, in effect, that when the commission has determined the depreciation expense for a utility, such determination shall be used in a proceeding involving rates. *Re Milwaukee Gas Light Co. 2-U-4266, August 30, 1956.*

Holding Company Exemption Denied because Detrimental To Public Minority Interest

THE Securities and Exchange Commission denied an application by Cities Service Company for an exemption for itself and its subsidiaries from the provisions of the Holding Company Act. In doing so it considered the continued existence of 48.5 per cent publicly held common stock interest in Arkansas Fuel Oil Corporation, a subsidiary of Cities Service.

The holding company is engaged in oil, natural gas, and other nonutility businesses, and has one foreign public utility subsidiary. The Fuel Oil system is engaged in the production, purchase, transportation, and sale of crude oil; production, processing, and wholesale sale of natural gas, and liquid carbons extracted from natural gas; purchase and sale of refined petroleum products and automobile accessories. The crude oil is sold to and refined by a Cities Service subsidiary. It is then sold to subsidiaries of Fuel Oil for sales through their retail gasoline stations.

Minority Public Interest

Since neither Cities Service nor its subsidiaries is in the public utility business in the United States, it meets the formal conditions of § 3(a)(5) of the Holding Company Act providing for exemption. But, the commission said, this alone is not sufficient to justify an exemption, because the act provides for exemption "unless and except in so far as" the commission finds the exemption detrimental to the public interest or the interest of investors or consumers.

The commission pointed out that under that "unless and except" clause, system and corporate complexities or an inequitable distribution of voting power so directly affect the interest of investors and consumers that their continued existence would require denial of the exemption.

The commission has repeatedly held that the existence of a publicly held minority interest in the securities of one or more companies comprising an integrated public utility system constitutes an undue and unnecessary complexity which in turn results in an inequitable distribution of voting power and the elimination of such an interest is required by § 11(b)(2) of the act.

Cities Service argued, however, that this relates peculiarly to integrated utility

systems and does not apply to the Fuel Oil system because it is nonutility in character.

The commission rejected this argument, saying that apart from § 11(b)(2) and considering the problem exclusively in terms of the "unless and except clause," it has also reached the conclusion that where there exists a potential conflict of interest between a registered holding company seeking an exemption and its subsidiaries, the exemption must be denied.

Affiliated Transactions

Fuel Oil is intimately tied to the Cities Service system by a multiplicity of affiliations and intrasystem transactions. Operationwise it has been assimilated into, and for all practical purposes is part of the Cities Service oil and gas system, supplying its available crude oil to the Cities Service refinery for processing, acquiring its market requirements from that refinery, and then distributing the products in stations carrying the Cities Service emblem. The commission believed that a conflict of interest manifested itself continuously between the Cities Service system on the one hand and Fuel Oil on the other, at least in so far as its impact on the minority stockholders of Fuel Oil is concerned.

Conclusions and Required Action

The commission concluded that the existence of that public minority interest in the subsidiary constitutes a complexity resulting in an inequitable distribution of voting power within the meaning of § 11(b)(2) of the Holding Company Act. This, it held, precludes the grant of an exemption under the "unless and except" clause of § 3(a). It was of the further opinion that this condition could be satisfactorily rectified only by eliminating the public minority interest in the subsidiary or by the holding company's disposing of its interest in Fuel Oil. The commission did withhold an order under § 11(b)(2), however, to afford the companies a reasonable opportunity to submit an appropriate program for compliance. *Re Cities Service Co. File Nos. 31-622, 54-186, 59-93, 70-1804, Release No. 13254, August 31, 1956.*

Gas Facilities Required to Meet Market Requirements And to Develop Underground Storage Field

THE Securities and Exchange Commission authorized Home Gas Company, a wholly owned subsidiary of the Columbia Gas System, to acquire gas production facilities and certain gas rights, leaseholds, and producing wells. The company is engaged in the purchase, storage, and transportation of natural gas and its sale at wholesale to various utility companies in New York state. It claimed that the acquisition would assist it in further developing its underground storage field and in meeting its market requirements.

Since the properties being acquired will not be used in the distribution at retail of natural gas and therefore are not utility assets, the exemption afforded by § 9(b)(1) of the Holding Company Act is not available. Since the properties constitute an interest in a business within the meaning of § 9(a)(1) of the act, the acquisition is subject to the commission's jurisdiction. The commission said that it was immaterial that part of the properties was previously included within a public utility distribution system under the jurisdiction

of the New York commission, and that such commission had approved the transfer. In the same proceeding, the commission authorized the Keystone Gas Company, another subsidiary of Columbia, to acquire a natural gas distribution plant. This company is engaged in the purchase, distribution, and sale at retail of natural gas in New York state. The additional distribution facilities it proposed to acquire would merely expand its present service area. The commission said that since this acquisition has been expressly authorized by the New York commission, it is exempt from SEC jurisdiction pursuant to § 9(b)(1) of the act. Consequently, the application was dismissed as to that company. *Re Home Gas Co. File No. 70-3495, Release No. 13252, August 30, 1956.*

Telephone Return Allowance Not a Precedent

In granting a telephone company additional revenues, the Tennessee commission made it clear that the 6.25 per cent return allowance was not to be construed as a precedent, but rather as the amount needed by the company in view of its recent history, operations, and capital required for expansion. The commission had its eyes on the total effect or end result to both the utility and the ratepayer; *i.e.*, the fixing of just and reasonable rates to both the investor and the consumer.

A rate of return established by a monetary figure, pointed out the commission, might be adequate for a utility at one time and excessive at some later date. In the instant case, it was necessary to consider particularly an expansion and conversion program which had been encouraged in recent years. In order to complete the program the company would have to raise additional capital through both equity and debt financing.

Company experts had testified that a substantial rate adjustment was needed in order to attract the necessary capital to complete the programs, and both had recommended an over-all return of between 7¾ per cent and 8 per cent. The commission appreciated the judgment of the experts in the investment field, but stated that it must approach the necessity of company earnings from the standpoint of a regulatory body rather than an ideal presentation of a security investor.

Increase Suspended on Two Exchanges Until Converted

Two of the company's exchanges had not yet been converted to modern dial operation. The commission ordered that, pending cut-over to such service, such exchanges should not bear any of the increase granted. The commission was aware that the company's operations in Virginia might very well be productive of a different schedule of rates. Although attempting, wherever possible, to co-operate with the action taken by sister states, where the question of rates was involved, it was necessary for the commission to consider solely the circumstances existing in Tennessee.

The commission was of the opinion that the revenue to be derived from exchanges presently receiving dial service would be sufficient to yield an adequate rate of return to maintain the financial integrity of the company through the paying of dividends, servicing of debt, and return of a reasonable amount to surplus. Upon the completion of converting the two exchanges aforementioned, the increased rates at those exchanges would take care of the attrition on earning which would

occur by reason of the large capital investment.

Inclusion of Working Capital, Construction Work in Progress, and Materials and Supplies

The staff's rate base, and the company's, had included items of working capital, construction work in progress, and materials and supplies. Although commission policy in other cases had been to exclude such items, they were included in the instant determination because the company had never capitalized interest, taxes, and insurance during construction and there was no method by which an amount could be determined that normally would be included in a rate base.

The establishment of a rate base in which interest, taxes, and insurance during construction had been capitalized and included, and excluding the items of working capital, construction work in progress, and materials and supplies, pointed out the commission, would have probably resulted in a larger amount than that used. *Re Inter-Mountain Teleph. Co., Inc. Docket No. U-3763, September 19, 1956.*

Conflict of Interest Results in Fee Disallowance

THE Securities and Exchange Commission disallowed certain fees and expenses for services rendered in connection with a holding company's sale of properties of a wholly owned subsidiary pursuant to a simplification plan, where the services related to an unsuccessful submission of bids for the properties. It found that the applicant was a real party in interest behind the bids for the properties.

Accordingly, it said, there was a conflict of interest between him as a prospective buyer interested in acquiring the properties at the lowest possible price and the holding company as a prospective seller interested in obtaining the highest possible price.

During the course of the reorganization proceedings the applicant also engaged in transactions in securities affected by the reorganization. He purchased some of the holding company stock and sold it at a profit. He endeavored to increase the participation of class A stockholders and undertook to act as their representative in the reorganization. When a compromise plan was finally effected, he signed the agreement as a representative of the stockholders. The commission held that since his services were rendered for the benefit of the entire class, of which he was a member, fiduciary obligations to the class were created which were incompatible with his transactions in the stock. Consequently, it held, he was not entitled to a fee for such services or to reimbursement of his expenses.

Guiding Standards

Compensation may be paid for services which have contributed to a holding company reorganization plan ultimately approved or to the defeat of a proposed plan found to be unsatisfactory, or which have otherwise directly and materially contributed to the development of the proceedings with respect to the plan. The commission said that, in determining the amount of compensation to be allowed, the primary factor is the amount of benefit conferred on the estate or its security holders by the services rendered. Other factors considered, however, are the necessity of the services, duplication of efforts, the intricacy and magnitude of the prob-

lems involved, time necessarily required to be expended, experience and ability of the applicant, size of the estate and its ability to pay, conflicts of interest, the extent to which the applicant's efforts were directed or motivated by personal or special interests, his purchases or sales of the securities involved, and the extent to which his efforts unreasonably delayed or were detrimental to the proceedings.

In applying these criteria the commission seeks to conserve the estate for the benefit of the security holders, while at the same time recognizing that inadequate allowances would tend to discourage vigorous and effective participation by representatives of security interests. *Re International Hydro-Electric System, File Nos. 54-159 et al. Release No. 13242, August 23, 1956.*

Distribution of Plastic Covers for Directories Violates Rights of Telephone Company

A COMPLAINT by the Illinois Bell Telephone Company against the manufacture and distribution to telephone subscribers of plastic covers to be placed on telephone directories was sustained by an Illinois appellate court. The court, reversing a lower court decision, ruled that the company's complaint stated a cause of action for injunction. The action was against Woodstock Plastics Company, which sold advertising space on plastic covers. When this company distributed covers, it included instructions urging the subscribers to affix them to their directories, all without the telephone company's consent, approval, or permission.

Ownership of Directories

A telephone company operating under the regulation of the state commission, according to the court, is the owner of directories as well as other facilities used by subscribers. They are loaned to the subscribers as an aid to the use of telephone service and are to be returned to the company upon request. While the company does not have the directories in its actual physical possession when they are in or on the subscribers' premises, it does have the absolute ownership of and property in them and the right at any time to resume actual possession. Such constructive possession, said the court, is entirely sufficient to support an action for trespass or for an injunction to enjoin continuing and repeated trespasses.

Rule Relating to Facilities

The telephone company is required to file rates, rules, and regulations with the commission. The regulations provide that subscribers shall not use any mechanical apparatus or device in connection with the equipment or facilities furnished by the company without its consent, or permit attachment of advertising devices without approval of the company. If any apparatus or device of any kind other than that furnished or approved by the company is attached or connected to the company's property, the company may remove the apparatus or device or suspend or terminate the service. The advertising company contended that directories are not "equipment" or "facilities."

The court, after referring to dictionary definitions and judicial decisions, decided that telephone directories are "facilities" furnished by the company within the meaning of this provision. It also decided that these plastic covers are a "mechanical apparatus or device" or "advertising

devices" within the meaning of the rule.

A directory is an essential instrumentality in connection with the peculiar service the company renders and is "as much so as is the telephone handset or transmitter or receiver, and is, hence, an integral part of the equipment actually used in the transmission of telephone service." The rest of the equipment, the court added, is practically useless without the directory.

Violation of Rules

The advertising company urged that since it had no contract or other dealings with the telephone company and was engaged in a lawful business, the complaint should be dismissed. The court said that such a company in a proper case may be guilty of a tort and be subject to an injunction regardless of its lack of contractual relations with the telephone company. Its business does not permit it to commit trespasses on the telephone company's property or tortiously to participate in persuading, soliciting, or inducing repeated breaches by the telephone subscribers of their contracts with the company to the injury of the company and the benefit of the advertising company. It was considered improper to attempt to induce subscribers to violate the telephone company's rules and in effect break their contracts for service. *Illinois Bell Teleph. Co. v. Miner (Willard Miner Co.) et al. 136 NE2d 1.*

Exercise of Eminent Domain for Transmission System Upheld

THE Pennsylvania superior court affirmed a commission order granting a certificate of public convenience and necessity to an electric company to acquire a transmission right of way across a farm. In considering public convenience and necessity for the exercise of eminent domain, said the court, not only existing needs are to be considered, but also future necessities. Selection of the route for transmission lines was a matter for the utility in the first instance and, unless it was shown that it proposed to exercise the powers conferred upon it wantonly or capriciously, the commission was not required to withhold approval merely because another route might have been adopted which would damage the owners less or lessen the inconvenience to them in the operation of their property.

The evidence was held sufficient to support the commission's order. The record showed that the proposed transmission line would integrate the company's network and enable it to supplement power-deficient areas from adjacent areas having available capacity, and that the line was essential to national defense and industrial expansion. *Phillips v. Pennsylvania Pub. Utility Commission, 124 A2d 625.*

Commission Order Eliminating Resale of Electricity By Real Property Owners Affirmed

OWNERS, managers, and operators of rental real estate assailed a commission order respecting the elimination of competitive resale of electricity purchased by them at wholesale rates. The Massachusetts supreme judicial court held that

the commission could lawfully issue such an order. The commission's rate-making powers carry with them authority to regulate rate practices as well as rate schedules.

Competition by Landlords

State policy of encouraging a monopoly of supply in the general interest was stated to be the basis for the regulation of the supply of electric current. A statute authorizing the commission to order a supply of electricity in bulk did not give those engaged in reselling electricity purchased at wholesale rates a right to require that electricity be furnished them for resale in competition with the utility. Plainly, there was competition between the private individuals and the utility.

Prior to the order, said the court, the real property owners had enjoyed a perquisite of location and occupation dependent upon the circumstance that for a period it had been found to be in the general public interest for the utility to maintain, without limitation in respect of competitive use of current bought, a rate structure that gave a very substantial discount to wholesale purchasers. This circumstance had the collateral effect of giving to owners of certain property, strategically located, state supported monopolies of business opportunity. There was no constitutional assurance that regulation would continue to be carried out so as to make likely the continuance of special opportunities for profit to real property owners.

The duty of service was owed to consumers and not to dealers, pointed out the court.

The contest here was over the application, rather than the validity, of the fundamental principle that the right of freedom to contract is subject to reasonable legislative control under the police power, and that reasonable and nonarbitrary action under the police power might be taken although it might diminish or destroy without compensation the value of property not actually taken.

No Vested Right to Continue Submetering

The court did not agree with the real property owners that vested legal or equitable rights had arisen in the continued receipt of electricity from the company at wholesale rates. It was undisputed that the company had sought and encouraged submetering in the earlier period and cooperated with landlords. The company, however, had never represented that the resale privilege would continue forever. The possibility of change in the regulations was implicit at all times. The owners had no vested rights, constitutional or statutory, in the practice of submetering.

Scope of Restricted Order

The commission's order had not been invalidated, held the court, by provisions allowing continuance of the resale practice in certain instances and under specific restrictions. Such provisions were designed to yield to the utility an approximation of the revenue it would have received if reselling had been eliminated altogether.

Constitutional safeguards have not been violated. Different treatment for different classes of customers, reasonably classified, did not result in unlawful discrimination. *Boston Real Estate Board et al. v. Massachusetts Dept. of Pub. Utilities et al. 136 NE2d 243.*

No Right to Wholesale Rate

In a separate opinion rendered on an appeal from a commission order dismissing an application to direct an electric company to continue to furnish electricity to resellers at wholesale prices, the court rendered judgment on the basis of the

above-mentioned decision. Resellers of electricity had no standing, it was held, to demand electricity at bulk rates to expand their practice of resale.

There was no rule of law that prevented the electric company from discontinuing the practice of selling to resellers at wholesale rates. The commission order would not deny electricity to anyone to whom it had been supplied under the former rate schedule or make it less freely available to any consumer. *Kargman et al. v. Massachusetts Dept. of Pub. Utilities et al. 136 NE2d 255.*

Commission Jurisdiction in Tariff Dispute

THE Nebraska supreme court considered a question of commission jurisdiction in deciding an appeal from a lower court judgment in an action brought by a motor carrier to recover proper charges for hauling. It was contended by the shipper that since a dispute over tariffs was involved, the controversy was one for the commission in the first instance and not for a court.

While the commission was by statute granted broad regulatory power, the statute did not either directly or by implication authorize a carrier to institute a proceeding before the commission against a shipper for the purpose of determining a rate dispute. Consequently, the court indicated, the commission would have been without power to entertain the proceeding even if the carrier had requested it to do so. But if a shipper were to present such a controversy to the commission, that body would then have power to determine it, thereby precluding court jurisdiction. *Mefford v. Wilson Concrete Co. 77 NW2d 895.*

Convenience of Public Rather Than Individuals Controls Decision on Service Curtailment

THE Alabama supreme court, in affirming a lower court's reversal of a commission order, agreed that the preponderance of the evidence showed that an agent was no longer required at a railroad station located near another station. This was said to be the first time the court had been called upon to decide the question of the removal of a station agent not in connection with the closing of a station or the reduction of train service.

Scope of Review

The court noted that under the law the commission's order should be taken as *prima facie* just and reasonable. It could be set aside if the court found that the commission erred to the prejudice of substantial rights in the application of the law or if the order was procured by fraud or was based upon a finding of facts contrary to the substantial weight of the evidence. The order, it was held, was based upon findings of fact contrary to the substantial weight of evidence and the commission erred to the prejudice of the railroad company's substantial rights in the application of the law.

Public Convenience and Necessity

The court referred to rulings by other courts that, among other things bearing upon discontinuance of an agency, there must be considered the volume and nature of the business transacted, costs and revenues, nature of transportation service re-

maining or to be substituted, proximity and accessibility to other stations, and inconvenience to the shipping and traveling public—not merely to an individual or a few shippers resulting from the removal of the agent.

There was very little passenger traffic and tickets could be bought from conductors on trains. The volume of business was small and there was no necessity for an agent to handle this business since the principal commodity handled was pulpwood and there was testimony that service from nonagency stations for handling this commodity was satisfactory. The court said that "the convenience here is to individuals and not to the public." The convenience and necessity required are "those of the public and not of an individual or individuals." Operation had been conducted at an economic loss and it was decided that the cost of maintaining the agency was out of proportion to the benefit to the public as a whole. *Alabama Pub. Service Commission v. Western Railway of Alabama, 89 So2d 64.*

Other Recent Rulings

Industrial Interchange Tracks. On appeal from a judgment in an action for railroad demurrage charges, the Arkansas supreme court ruled that interchange tracks serving a government arsenal and used by the railroad only for the placement of cars to be delivered were "industrial interchange tracks" and not "public delivery tracks," within the meaning of Interstate Commerce Commission rules eliminating the requirement of written notice to the consignee. *Missouri P. R. Co. v. Hogan (Ben M. Hogan & Co.) 292 SW2d 263.*

Stock Issue Pursuant to Merger Plan. A telephone company, which had been authorized to acquire the assets of another telephone company, was allowed by the Wisconsin commission to issue common stock to finance the acquisition of all of the latter company's common stock to effectuate a merger of the companies. *Re Dairyland Teleph. Corp. 2-SB-656, September 6, 1956.*

High Debt Ratio Allowed. The Wisconsin commission authorized a telephone company to issue first mortgage notes resulting in a high debt ratio of 55 per cent in view of the fact that the notes provided for semiannual debt reduction of 2 per cent and the fact that the company's net operating revenues would provide a satisfactory coverage of the interest cost on the proposed debt of the company. *Re Price County Teleph. Co. 2-SB-642, June 26, 1956.*

Rate Case Expenses Amortized. The New Jersey commission authorized a water company to amortize rate case expenses over a 5-year period. *Re Princeton Water Co. Docket No. 9138, September 5, 1956.*

Airport Car Rental Contract. A municipal airport authority did not abuse its discretion, said the Arizona supreme court, in awarding a contract for car rental service at the airport without first issuing a public call for bids. *Hertz Drive-Ur-Self System, Inc. v. Tucson Airport Authority et al. 299 P2d 1071.*

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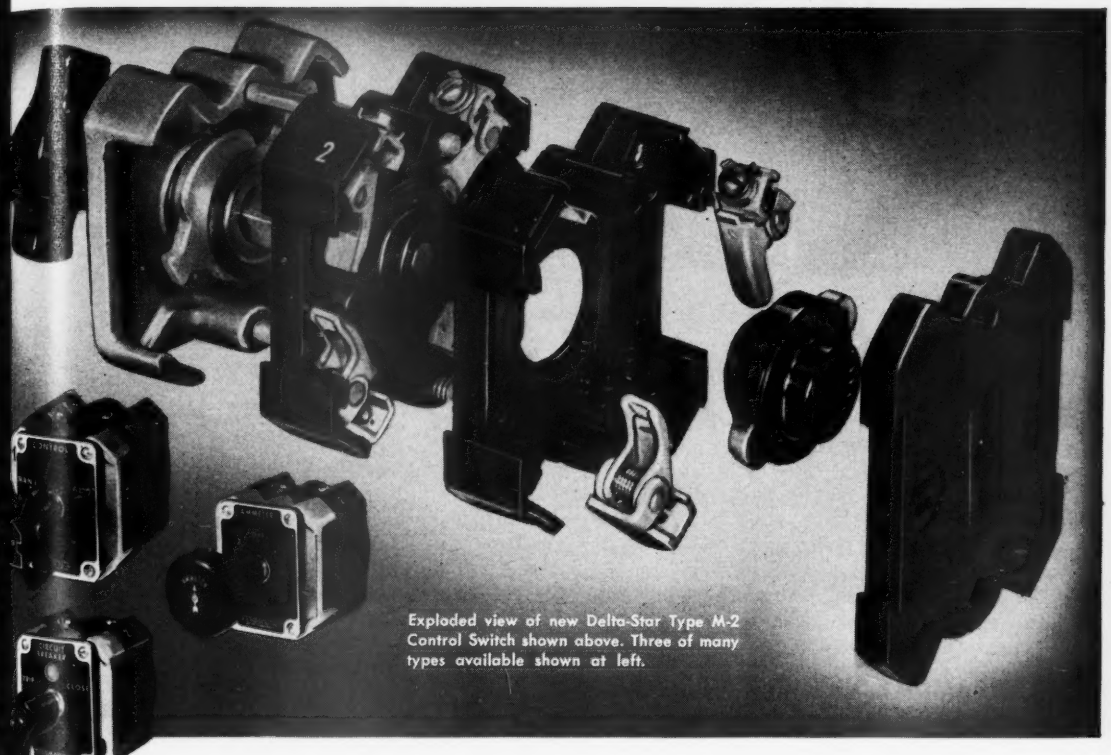

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Industrial Progress

Gas Industry Construction Expenditures To Set New Records

As utility and pipeline company expansion is expected to reach t $1.8 billion dollars in 1957. This ased upon figures for the next e-year period during which it is nated that a total of $5.7 billions be spent for new and expanded ities. The American Gas Asso- on estimates that the 1956 ex- itures for these system improve- s will top $1.6 billion. During next three years—1957 through 9—the construction expenditures he gas utility and pipeline com- es in the United States should, rding to AGA estimates, aggre- $5.7 billions the greatest sum expended by the industry in any e-year period. Should the 1956 1957 estimated expenditure levels ttained it will make a record e-year period in which construc- programs for the gas industry annually exceeded the billion dol- mark.

he totals for 1956 and 1957 and he next three years assume a con- tion of current levels of business industrial activity and a continua- of the current status of gradual tion. They also reflect current ipations with regard to demands as and necessary expansion.

er 90 per cent of the estimated truction expenditures for the three years is to be spent on fa- es for natural gas systems. Dur- he 1956-1959 period a total of $3 n will be expended for natural ransmission facilities. Distribu- facilities will require an expendi- of $2.5 billion. Nearly $280 mil- will be used to increase under- nd storage facilities during the year period.

recent years are an indication another one-million customers will be added by the industry to its service records during 1957. Continued population growth and new housing activity, combined with efforts to eliminate restrictions still existing for natural gas for heating, will sustain a high level of construction activity. Here are some construction figures covering 1957 programs gleaned from statements provided by the following companies:

Arizona Public Service Company (Phoenix, Ariz.), plans to connect 11,802 new customers in 1957. This will entail about 169 miles of distribution piping, mostly 2 in. and 1¼ in., about 180 miles of ¾ in. service piping plus 11,802 meter and regulator set assemblies. The company has budgeted $2,514,000 for this work. In addition to this new revenue construction, the company plans to spend approximately $225,000 for system improvements entailing about nine miles of 6 in., 8 in. and 10 in. pipe. Approximately $100,000 has been budgeted for distribution main replacement and $109,000 for service replacement.

Associated Natural Gas Company (Sikeston, Mo.), reports that preliminary estimates indicate that its construction budget for the year 1957 will amount to approximately $250,000, consisting principally of service extensions and routine construction. The company expects to gain approximately 1,200 new customers during the coming year.

Atlanta Gas Light Company (Atlanta, Ga.), estimates that its construction program for the fiscal year beginning October 1, 1956, will be approximately $8,500,000. Principal items will be the completion of a 1,350,000 gallon capacity refrigerated propane storage installation and extension of service to six additional communities. It is anticipated that about 23,000 customers will be added to the 303,778 now served.

Baltimore Gas and Electric Company (Baltimore, Md.), reports that expenditures for new construction during the next five years are estimated to total more than $211,000,000. Of this sum, $36,975,000, or about $7,395,000 per year, will be spent for the expansion of the gas system. Approximately $8,000,000, or $1,600,000 per year, will be spent for miscellaneous facilities including office and shop quarters, vehicles, furniture and fixtures, steam heating facilities, etc. During the past five years more than 53,600 new gas customers were added to the company's lines. During 1955 alone the company added more than 13,800 gas customers to its lines. The growth of gas sales since the introduction of natural gas in 1950 has been approximately 118 per cent.

Berkshire Gas Company (Pittsfield, Mass.), estimates that total expenditure for 1957 construction will amount to $600,000. This amount is allocated as follows:

Blankets, meters, new services, etc.	$155,000
New business extensions	60,000
Main replacements	60,000
New main and distribution system to serve town of Cheshire	180,000
Peak shaving equipment	60,000
Miscellaneous	85,000
Total	$600,000

Approximately 475 new customers will be served this year.

Boston Gas Company (Boston, Mass)., estimates that new construction expenditures in 1957 will amount

to $2,460,000, the majority of which is for reinforcement of present system to supply larger customers demands and new housing projects. Of this amount about $2,000,000 is for distribution mains, services, meters, etc. The balance is for production, transportation and office equipment.

The Bridgeport Gas Company (Bridgeport, Conn.,) expects that construction expenditures during 1957 will amount to $820,700. Details are as follows:

New mains	$371,700
New services	149,500
New meters	100,000
New meter connections) Regulators)	64,000
Regulator Installations) Automotive	29,500
Office Furniture & Fixtures etc.	20,100
Miscellaneous	85,900
Total	$820,700

Brooklyn Borough Gas Company (Brooklyn, N.Y.), expects that expenditures in 1957 will be about the same as in recent years, i.e. about $300,000. Of this amount, $10,000 will be for improvements in the production and storage plant; $260,000 for additions to the distribution plant and $30,0000 for automotive equipment, office equipment and similar items. No major projects are contemplated. The number of additional consumers to be supplied are expected to approximate 3,000 which will be scattered throughout the territory, many of whom can be supplied from the existing facilities.

The Brooklyn Union Gas Company (Brooklyn, N. Y.) reports that construction expenditures for 1957 will total $13,035,854. Major items include:

Southern Extension N. Y. Facilities Line	$3,190,000
New Service center at Greenpoint Works	2,300,000
Purchase of land for new building	625,000
New med. pressure main	855,000
Distribution facilities	3,890,446
Manufacturing facilities	1,176,161
Customers service facilities	104,950

Central Illinois Electric and Gas Co. (Rockford, Ill.), reports that a preliminary estimate of 1957 gas construction indicates a total amount to be expended of approximately $1,700,000. It is also estimated that approximately 2,200 customers will be added to the company's lines, and that the major expenditures will be for the purpose of adding customers and general improvements and betterments to the system.

Central Illinois Light Company (Peoria, Ill.), expects to invest about $2,400,000 in new business (mains, meters, and services). Approximately 4,800 new customers will be served.

Central Illinois Public Service Company (Springfield, Ill.), estimates that its 1957 construction program will cost $1,560,000. Of this total it is expected that approximately $800,000 will be required for various distribution projects including both new extensions and replacements of existing facilities. Approximately $760,000 is scheduled for various transmission projects including approximately 13 miles of 8 in. and 22 miles of 6 in. transmission main. It is estimated that approximately 1,000 to 1,200 additional customers will be connected during 1957.

Central Indiana Gas Company (Muncie, Ind.), reports that its 1957 construction program has not been fully formulated. It is expected that the construction budget for the year 1957 will be in an amount approximating one and three-quarter million dollars.

Central West Utility Company (Kansas City, Mo.), reports that about 600 customers will be added during 1957. Tentative expansion plans call for an expenditure of approximately $150,000.

Cheyenne Light, Fuel and Power Company (Cheyenne, Wyo.), contemplates total construction expenditures in 1957 of approximately $225,000. It is expected that approximately 525 customers will be added. Projects are principally of routine character and include customer extensions, together with miscellaneous replacements and reinforcements. No major projects are planned.

The Cincinnati Gas & Electric Company (Cincinnati, Ohio), will invest $5,000,000 on construction in 1957—approximately the same as for 1956. About 5,000 new customers and 10,000 additional heating customers are expected to be added during the year.

Colorado Interstate Gas Company (Colorado Springs, Colo.), plans to spend approximately $ 000,000 on construction in 1957. this amount, $86,000,000 is propo for an expansion program autho ation for which is presently pend before the Federal Power Comm sion. This program would provide the construction of facilities to rice, Nebraska, and the sale at point of peak day volumes of 4 000 MCF to Natural Gas Pipe Company of America for trans sion to the Chicago market. It provides for the strengthening facilities serving the Rocky Moun area. The balance of approxima $8,000,000 will be spent on the pany's producing properties, gat ing systems and general addit and replacements.

Consolidated Edison Comp of New York, Inc. (New Y N.Y.,) estimates that expenditure 1957 on gas facilities will amoun $5,000,000, the greater part of w will be for distribution. No m plant construction projects planned for 1957. In July of this y Con Edison completed the conver of New York to natural gas at a of some $50,000,000. This job volved the conversion of nearly million appliances of about 1, 000 customers. The cost of conver includes the modification of gas ing equipment to make high gas for peak periods. Conversio gas service area of Con Edison (hattan, Westchester, the Bronx the first and third wards of Que was begun in Westchester in In the conversion of Manhattan some 261 miles of duplicating were eliminated.

Delaware Power & Light C pany (Wilmington, Del.), rep that preliminary estimates ind gas construction expenditures in will amount to approximately $1, 000. The estimated additional tomers to be served is 1,350. househeating customers are exp to increase by 2,000, many of w are present customers.

Gas Light Company of Co bus (Columbus, Ga.), plans to mit to its Board a construction gram for 1957 amounting to app mately $650,000. This program cludes distribution facilities to approximately 2,700 new custo extension of belt line facilities new areas, approximately dou

(*Continued on page* 40)

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Each day on the average, 00 new people establish resi- nce in the territory served Southern California and uthern Counties Gas Com- nies. These people need Gas cooking, water heating, se heating and other pur- es... and we have it ready them because we have long n increasing the capacity of integrated systems.

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INDUSTRIAL PROGRESS

(*Continued*)

the size of its service building, alterations to its main office build

Haverhill Gas Light Compa (Haverhill, Mass.), plans to sp about $250,000 during 1957 for tensions to new customers and provements to its distribution syst It will spend about another $75, for miscellaneous improvements cluding office equipment, automob and minor plant improvements.

Indiana Gas & Water Compa Inc. (Indianapolis, Ind.), repo that it will probably spend about 450,000 on construction in 1957, will take on approximately 3,200 gas customers. At this time no ma construction projects are cont plated.

Iowa Power and Light Co pany (Des Moines, Iowa) ant pates that it will spend $1,565,000 gas construction during 1957. Of amount $238,000 is to be spent high pressure feeder mains, $39, for gas production facilities and remaining $1,288,000 for distribut facilities including mains, servi meters, regulators, odorizers and rosion control. It is estimated approximately 4,200 customers wil added during 1957.

Iowa Public Service Compa (Sioux City, Iowa.), estimates tha gas construction budget for 1957 be as follows:

Blanket work orders	$ 642
Gas plant	85
Gas distribution	245
New main extensions	644
Total	$1,616

Kansas-Nebraska Natural Company, Inc. (Hastings, Ne serves twenty counties in Nebra and four in Kansas which have run irrigation pumping projects. is used to pump water into the la

The total number of natural meters on irrigation wells in the county area of Nebraska is 1,5 That required a total of 370 miles farmer-built distribution pipeline well as 148 miles of service lines.

In the entire Kansas-Nebraska trict, the total number of irriga wells serviced by natural gas reached almost 2,000. Nebraska co ties participating include Linc Dawson, Buffalo, Hall, Hamil York, Valley, Sherman, Front Gosper, Phelps, Kearney, Ada Clay, Fillmore, Red Willow, Har Franklin, Nuckolls and Trayer.

(*Continued on page* 42)

Gas holders, a familiar part of the Minneapolis skyline since the 1870's, are a constant reminder of the important role Modern Gas Service has played in the city's progress. For industry or home, clean, fast Natural Gas serves Minneapolis best . . . and more economically too!

GAS SALES – M. C. F.

1955	53,086,254
1954	51,733,158

TOTAL CUSTOMERS

1955	194,716
1954	186,192

HEATING CUSTOMERS

1955	153,103
1954	141,953

MINNEAPOLIS GAS COMPANY

Kentucky - West Virginia Gas Company (Ashland, Ky.), estimates that the 1957 construction program will amount to approximately $3,000,000.

Laclede Gas Company (Saint Louis, Mo.), estimates that total gross construction for the fiscal year ending September 30, 1957 will total $11,600,000. Net additional customers to be served will amount to 7,800. Major project included in this amount is the development of underground storage reservoir at a cost of $2,300,000. The remainder will be spent for additions and betterment of distribution system, etc.

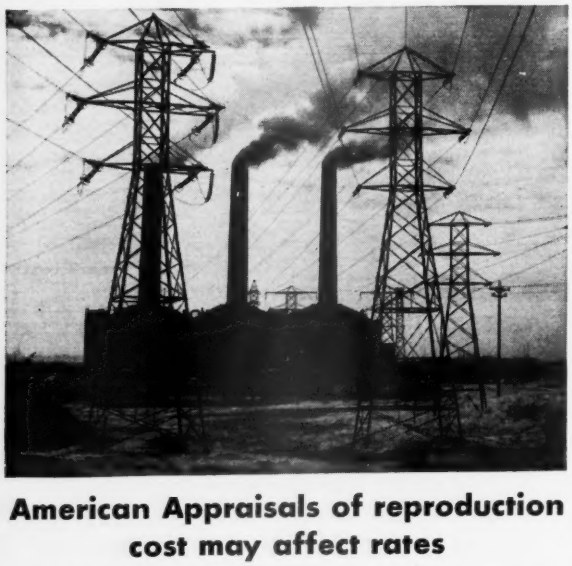
Manchester Gas Company (Manchester, N.H.), reports that the proposed reinforcement of its distribution system is the major item for 1957 at a cost of approximately $125,000. An extension of system to the new state developed industrial park at Hooksett, New Hampshire, is scheduled for 1956 at cost of $50,000.

Milwaukee Gas Light Company (Milwaukee, Wis.), will invest approximately $9,000,000 in new facilities during 1957 to extend and improve natural gas service in the metropolitan Milwaukee area. The construction budget will include funds for mains to reinforce the present distribution system, main extensions and new subdivision mains to serve new customers, mains and improvements associated with highway and street improvement work, and facilities to serve new industrial customers. The 1957 construction program contemplates the installation of a total of 898,720 feet of mains of various sizes. Included in the program are about 821,000 feet of steel main in sizes ranging from 2 in. to 24 in. with the bulk in sizes of 2 in., 3 in., 4 in. and 6 in. About 78,000 feet of cast iron mains will be laid, in sizes ranging from 4 in. to 20 in. with the bulk of it in 6 in., 8 in. and 12 in. sizes. The company will construct about 8,000 new services to provide natural gas to new customers, and will renew about 4,000 old services because of their inadequate size or condition. During 1957, the company expects to complete its pressure elevation program which will provide greater capacity in the cast iron distribution system t serves the central portion of its se ice area. This program will requ the installation of about 15,000 pr sure regulators on custome premises and will permit raising m pressures from about ¼ pound about 1 pound. During 1957, the co pany also expects to complete its called "outer belt line," an interme ate high pressure line that will tirely encompass the Milwaukee m ropolitan area.

Missouri Natural Gas Compa (Farmington, Mo.) has an expans program to supply natural gas several Missouri towns at a cost $2,500,000. The program, to be co pleted in two years, will supply to DeSoto, Herculaneum, Hemat Pevely, Horine, Victoria and Sel besides expanding gas service towns already being served.

It is estimated that the expans program will make gas available 3,000 families in the towns to served for the first time, and additional customers in towns alre served.

(*Continued on page* 44)



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Guarantee positive tight connec and extra long service on your lines by using the DART GUAR TEED UNION.

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once in a blue moon that a com-y—no matter how big, how crea-how progressive—really builds a ter "mouse trap." Not just a face-ng or add-on features job, mind —but something so remarkable, so lutionary, so *wanted* that it makes competitive product seem as old-as the wood burning stove.

Rheem come up with such a prod-We think so. Right now there are e working models on test. It has researched in our laboratories to ilt! Let us tell you about it. Then, le for yourself, and *you* tell us if em has done it.

REVOLUTIONARY GAS-IRED YEAR-ROUND AIR ONDITIONING FOR THE HOME!

h a single gas burner, Rheem's ew, gas air-conditioning unit s in the winter and cools the whole e in the summer. It works on the ump principle of cooling that's today in only very large com-ial systems. Yet, Rheem's unit is re 4 feet high, 5 feet long and 2 feet wide. A lot smaller than just the furnace you'll find in most utility rooms. And not only that, if desired, this entire unit can be placed *outside* the home.

A 3-ton cooling or 100,000 BTU heating unit runs on as little as one therm of gas an hour. You simply set the ordinary, household variety thermostat and forget it. Come summer, the heat shuts off and the cooling system cuts in—*all automatically.*

Installation? No problem at all! Rheem's unit is completely encased, factory-charged and hermetically sealed. Only plumbing connections are needed. And it's easily adaptable to either circulating air heating and cooling or wet heat and chilled water systems.

Release date? That depends. We'll be field-testing all year long in 1957, throughout the country. In every kind and size of home, in every climate. If things go as well as we expect they will, 3- and 5-ton units should be available early in 1958.

As far as cost goes, you can be sure that this new Rheem unit will be competitive with any year-round home air-conditioning system on the market today!

For further information on this revolutionary unit, or information concerning a utility field-test model, please contact Mr. A. F. Cassidy, National Sales Manager, Home Products Division, Rheem Manufacturing Company, 7600 S. Kedzie Avenue, Chicago, Illinois.

You can rely on Rheem

RHEEM MANUFACTURING COMPANY

7600 South Kedzie Avenue,
Chicago, Illinois

Other Great Gas Products by Rheem: WATER HEATERS, FURNACES, BOILERS, RANGES AND CLOTHES DRYERS.

Ten miles of pipeline will be constructed from a point north of Festus to DeSoto by way of Hematite and Victoria. Completion of distribution facilities in the intermediate towns is scheduled for 1957. To serve Pevely and Herculaneum the line will go southwestward from the Mississippi River Fuel Corporation's main line west of Pevely.

Missouri Natural Gas now serves 18,000 customers in Popular Bluff, Fredericktown, Farmington, Festus, Crystal City, Boone Terre, Flat River, Elvins, Desloge and Ste. Genevieve.

Nashville Gas Company (Nashville, Tenn.), estimates that capital expenditures for the year 1957 will amount to around $750,000 and that approximately 2,000 customers will be added to lines. No major projects are contemplated.

New Orleans Public Service Inc. (New Orleans, La.), estimates that its gas construction expenditures for the year 1957 will amount to $2,011,000.

New York and Richmond Gas Company (Staten Island, Stapleton, N.Y.), estimates that capital investment for the year 1957 will amount to $1,300,000. It is also estimated that 1,000 new customers will be added during the year.

Ohio Gas Company (Bryan, Ohio) estimates that the 1957 construction program will amount to $2,451,000 and will provide service to 4,945 additional customers. Included is provision for serving two additional communities. The construction will consist principally of 273,440 ft. of transmission line, 387,000 ft. of distribution line, 129,000 ft. of service lines and the installation of a propane peak shaving plant.

Oklahoma Natural Gas Company (Tulsa, Okla.), plans to invest approximately $8,863,000 during 1957 for new construction. Of this amount, approximately $1,726,000 will be spent for drilling and equipping new oil and gas wells and for the acquisition of leaseholds. Transmission expenditures for this period are estimated to be $1,664,000. Two of principal projects included in amount are (1) the installation 15½ miles of 8 inch line connec the Gotebo gas field to Oklah Natural's transmission system in western part of Oklahoma, and the connection of other new gas plies to Oklahoma Natural's tr mission system. Gas storage expe tures are estimated to be $150 for replugging wells in the Sayre Storage Reservoir and for the in lation of scrubbers at the De Storage. Distribution expendit are estimated to be $3,684,000. this amount, $1,808,000 will be s for extending mains and provi service to approximately 14,525 customers in the various cities se by Oklahoma Natural. The remai of the investment projected for distribution system will be spent marily on various rebuild proj The remainder of the 1957 bu will include various items such gasoline plants and other genera vestment projects.

Pacific Gas and Electric C pany (San Francisco, Cal.), exp to invest approximately $36,250 in improvements to its na gas transmission and distribu system during 1957. This will inc the construction of 200-250 mile transmission lines and 500-700 m of distribution lines. About 63 new natural gas customers are pected to be connected. Most im tant among the projects schedule 1957 are (1) the additional para ing of 64.8 miles along the compa 34-inch "Super Inch" pipeline w brings Texas and New Mexico to Northern California, together the enlargement of compressor f ties at stations along this line, and construction of an 83-mile 18- 20-inch transmission line down west side of California's Sacram Valley, connecting newly-devel wells in the vicinity of Willows, fornia, with Central California centers.

Peoples Gas System (Flor Inc. (North Miami, Fla.), estim that its total investment for years 1957 through 1962 (East West Coast Divisions) will am to $10,567,000. This includes the of converting the company's pr 78,000 customers to natural gas the addition of upwards of 2 new customers. It is estimated

(*Continued on page* 46)

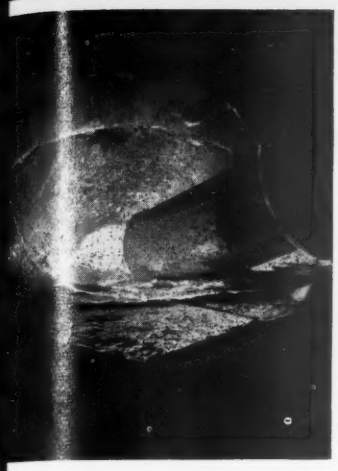
'The Growing State'

• **New Jersey,** long known as the Garden State, is quickly gaining the reputation of "The Growing State."

We are proud to be a part of this story of American initiative, enterprise and high standard of living.

As a reflection of this development, the New Jersey Natural Gas Company in 1955 showed a 90% increase in sales over 1950. This increased load was well balanced among the residential, commercial and industrial newcomers to the area we serve.

NEW JERSEY NATURAL GAS CO.

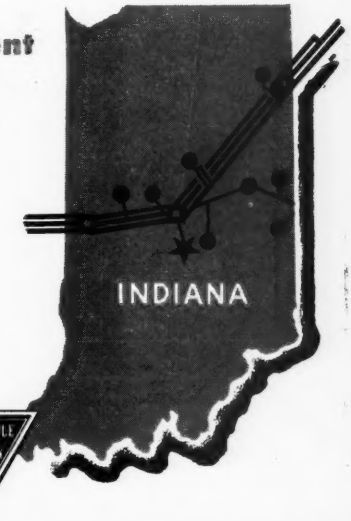


ting glass at Winchester, ana. The glass industry in iana is just one founded n available natural gas.

FUEL FOR THOUGHT WHEN YOU CONSIDER A NEW PLANT SITE. Ponder this: Natural gas, the most nearly perfect fuel, offers so many advantages that its availability can provide a definite competitive edge to industries that *melt, heat-treat, anneal, bake* or *dry*.

Brought to the industrial heart of debt-free Indiana by Panhandle Eastern, natural gas may be purchased directly from the pipe line system, and also from utilities which buy from Panhandle for re-sale.

Our Industrial Development Department has available complete plant site information, and will welcome an opportunity to assist you.



PANHANDLE EASTERN PIPE LINE COMPANY

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construction expenditures for 1957 will amount to $1,778,500. This estimate includes trunk mains, transmission laterals, district regulators, and general improvements in anticipation of receiving natural gas in 1958. It is expected that 3,000 new customers will be added during 1957. Although the company anticipates receiving natural gas in 1958, it intends to continue improvements in oil-gas and water-gas facilities as well as keep a weather-eye on natural gas developments.

Portland Gas & Coke Company (Portland, Ore.), had unusually heavy construction expenditures during 1956 as it was making preparations for the arrival of natural gas, which was turned into the system on September 1st. Construction expenditures for the year 1957 will total approximately $4,000,000, most of which will be spent for mains and services to serve an estimated 12,000 new customers. No major construction projects are contemplated.

Public Service Company of Colorado (Denver, Colo.), reports that its budget for gas construction for the next year is now in the process of being finalized. Following is a breakdown of expected expenditures:

Gas Department Specifics ...	$ 800,000
Routine Blanket (meters, regulation services, mains)	5,560,000
	$6,360,000
Gas portion of common and general transportation equipment, furnitures, general buildings, etc.	300,000
	$5,650,000

Rio Grande Valley Gas Company (Brownsville, Texas), spends annually, about $500,000 for various extensions to distribution systems and replacements of pipelines. In 1957 the overall program will be approximately $700 000 because of the necessity for replacing a section of the company's main line. No major projects are foreseen at this time.

Rochester Gas and Electric Corporation (Rochester, N. Y.), anticipates that total expenditures during 1957 will total $21,615,300. Of this amount, $4,593,000 will be spent for improvements in the gas department.

No major gas improvements planned. The forecasted expendi will provide for extension of m and services for the company's mal growth. During 1957 the com expects to add about 3,500 new h to its lines, and 6,500 new space ing customers.

Sierra Pacific Power Com (Reno, Nev.), expects that struction budget will run in the n borhood of $250,000 for the ye which approximately $170 000 w spent in the connection of new tomers and main extensions w are required for that purpose. O amount about $20,000 will be for gas main replacements; $1 for miscellaneous and general e ment, $44,000 for large exten and large feeder network tie-i is anticipated that approxim 1,000 new customers will be nected during the year.

The Southern California Company (Los Angeles, plans construction expenditure $46,800,000 for extending and proving its gas transmission an

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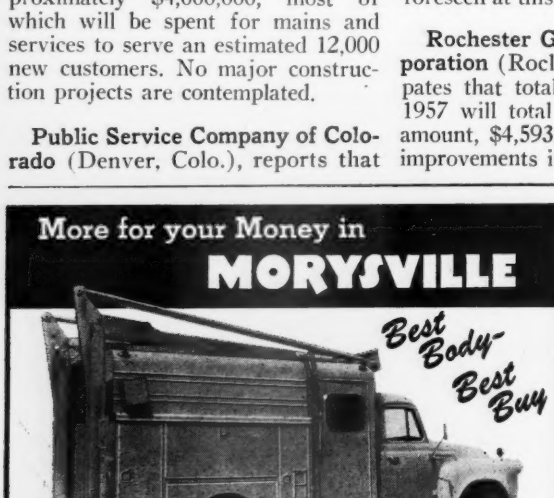

New Line Construction Body for single or dual wheel chassis from ¾ to 2 tons. Length from 8' to 14' (CA's from 48" to 120"). Sliding roof for derrick; ample stowage space inside and out. Many plus features at no extra cost.

- 14 and 16 ga. Body Steel (14 ga. throughout for models rated 1 ton up—19 ga. doors).
- ⅛" Diamond Floor Plate.
- 5" Structural Channel Understructure.
- Electric Welded throughout.
- Telescoping Roof with weather tight, easy sliding action.
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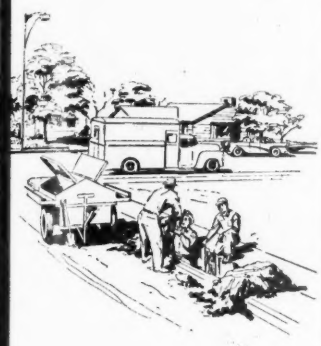

onnecting gas services safely, out loss of gas has been a prime isite to the great majority of gas ty management. The Mueller No- Method, now in wide use through- the gas industry, has proven to simple safe procedure for making ice connections, running laterals, ing stop-offs and other jobs in a No-Blo manner, without escape as.

complete line of No-Blo fittings drilling machines and line stopper s of varying sizes permits a gas ty company to perform its work safe manner.

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tribution systems during 1957. The company at present has about 1,525,-030 customers in its service area which extends over most of Southern California with the exception of Orange and San Diego Counties.

The 1957 construction budget is the largest in the company's history and exceeds estimated construction expenditures for 1956 by about $6,000,000.

The largest single expenditure planned is approximately $16,100,000 to complete 241 miles of 285 mile 30" pipeline extending from a point on the California-Arizona border near Needles to Los Angeles, together with a compressor station to bring additional out-of-state gas to California. Construction of this pipeline, which will be jointly owned with Southern Counties Gas Company of California, an affiliate, was begun in 1956.

The company expects to add about 56,000 new customers during 1957 and has budgeted $11,000,000 to provide distribution facilities to supply these new customers.

A total of about $13,000,000 is budgeted for betterments and replacements of the existing distribution, transmission and storage systems. In addition, about $6,800,000 is earmarked for other classifications and improvements of a general nature.

The following table summarizes by broad classifications the proposed construction expenditures for 1957:

Mains, meters and services to supply an estimated 56,000 new customers	$11,000,000
Completion of 241 miles of a 285 mile, 30 in. pipeline extending from a point near Los Angeles to the California-Arizona border near Needles	16,000,000
Other transmission, distribution and storage system betterments and replacements	12,900,000
New buildings for offices, shops and warehouses and alterations and improvements of existing buildings	4,700,000
Miscellaneous additions and betterments including the purchase of land, automobiles, furniture, etc.	2,100,000
Total	$46,800,000

Southern Counties Gas Company (Los Angeles, Cal.)—an affiliate of Southern California Gas Company—has the following construction program for 1957:

Mains, meters and services to supply an estimated 57,000 new customers	$14,000,000
Completion of 241 miles of a 285 mile, 30" pipeline extending from a point near Los Angeles, California to the Calif.-Ariz. border near Needles	8,000,000
Other transmission, distribution and storage system betterments and replacements	5,000,000
New buildings for offices, shops and warehouses and alterations and improvements of existing buildings	4,000,000
Miscellaneous additions and betterments including the purchase of land, automobiles, furniture, etc.	2,000,000
Total	$33,000,000

Southern Union Gas Company (Dallas, Texas) expects that the construction program for 1957 will be substantially the same as for 1956. Total construction estimate for 1956 is as follows:

Drilling and lease additions	$3,244,000
Gathering lines, measurement, etc.	1,254,000
Transmission	860,000
Distribution	3,801,000
General Plant	555,000
Total	$9,714,000

The company expects to connect about 16,000 additional customers. No major projects are anticipated.

Texas Eastern Transmission Corporation (Shreveport, La.), now has before the Federal Power Commission proposals for substantial construction during 1957. If approved, this construction would amount to approximately $140,000,000. Included in the proposals is a request

Dependable Natural Gas Service for Home, Farm and Industry

KANSAS-NEBRASKA Natural Gas Company Inc.

Serving the Great Plains Area

for expansion of Texas Eastern's system capacity by approximately 250,000,000 cubic feet of natural gas per day. This would include construction of substantial amounts of new pipeline facilities and additional compression along the company's pipeline system.

Texas Gas Transmission Corporation (Owensboro, Ky.), has a $26,000,000 systemwide expansion program underway and it is scheduled for early completion. In accordance with the company's policy to anticipate customers' needs two to three years in advance, the overall 1956 expansion program is designed to meet the requirements of Texas Gas utility and industrial customers through the winter of 1957-58.

Two major construction projects are included in this final phase of an expansion program which will increase substantially the system's delivery capacity. Work has begun on a 105-mile section of 20-inch line and five miles of 12-inch line extending from the southern terminus of Texas Gas' 26-inch pipeline system at North Tepetate, Louisiana, into the East Lake Palourde gas field. Soon to be started is the installation of a 700-mile, 32-station microwave system to link compressor stations and key operational offices in five of the eight states the company serves.

When completed, the new facilities will raise the peak day delivery capacity of the Texas Gas system to 1 billion 275 million cubic feet, an increase of approximately 155 million or 13.9 per cent over the system's capacity at the end of the 1955 construction program.

The addition to the system's capacity will enable Texas Gas to increase the amount of gas delivered to existing utility customers as well as to initiate service to 19 new utility customers. As a result, it is expected that approximately 60,000 gas consumers will be added to the distribution lines of these new and existing Texas Gas customers and 37 communities will receive gas service for the first time.

The overall expansion program for 1956 covers enlargement of the Texas Gas pipeline system by approximately 227 miles, addition of 30,970 horsepower to its natural gas compressor facilities, and installation of the microwave system as an aid to operations.

Union Gas System, Inc. (Independence, Kan.), reports that its construction budget calls for an expenditure of approximately $500,000 for the twelve months ending August 31, 1957.

The United Gas Improvement Company (Philadelphia, Pa.), expects that expenditures for 1957 construction will amount to $6,800,000. Bulk of the expenditures will be for additions and expansions of distribution system to meet increasing demands.

Volunteer Natural Gas Company (Johnson City, Tenn.), reports that its major construction program has been completed and the year 1957 will be devoted to construction of additional service lines and minor distribution mains in smaller sizes. The investment will not be over $200,000 for this and the additional customers will be in the neighborhood of 1,000.

Wisconsin Southern Gas Company (Lake Geneva, Wis.), estimates that construction expenditures for 1957 will aggregate $374,0 About 400 new customers will served.

Rheem Mfg. Presents Gas Air Conditioner

LEADERS of the gas industry the trade and daily press have b showing enthusiasm about the g fired, jet principle central home he ing and air conditioning unit de oped by Rheem Manufacturing C pany.

The unit was on display for weeks in the laboratories of the P ples Gas Light and Coke Comp in Chicago. It was to be shown ag during the week of October 12 to company officials, security anal and newspaper people in the Bos area at the Cambridge laboratories Rheem.

The gas unit is the development many years research in air conditi ing. It is a logical outgrowth of electric central home air conditio This Rheem approach to air co tioning, using gas for operation, introduced extensive refinements

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Editor-in-Chief: Ellsworth Nichols, Rochester, N. Y. Managing Editor: Francis X. Welch, Washington, D. C.

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PUBLIC UTILITIES REPORTS, INC.
A. S. Hills, Business Manager

Sworn to and subscribed before me this 27th day of September, 1956.

Josephine A. Olker
Notary Public
(My commission expires August 31, 1958)

jet principle of cooling, previously eful only in large commercial or dustrial applications.

The new air-conditioning unit, thus un-named by Rheem, consists of small cabinet four feet long, two t wide and four feet high. The it may be placed outside of the me, instead of occupying expensive or space or useful basement area; d the one unit provides both cooling summer and heating for winter.

The change from cooling to heating or from heating to cooling—is accomplished automatically by a conventional thermostat that is adjusted in usual manner, according to the me owner's ideas of comfortable perature. Then, the system delers year-'round comfort without ther adjusting.

Installing a warm-air heating sysn with the new Rheem heating and ling unit is a simple operation, ng conventional ductwork. The rnace is eliminated, and instead a all cabinet is installed, enclosing a ned coil and a quiet, high capacity wer. Then chilled water is cirated through the coil for summer conditioning, while the blower disches cool dehumidified air throughthe house. During the winter, hot ter is pumped through the finned l, to warm the air stream from blower.

In homes with hot water systems all, attractive convector units are ated throughout the homes. Each vector has its own fan to circate air over a small finned coil, ough which chilled—or hot—ter is pumped.

Another aspect of the new Rheem tem, for installation in hot water tems, is the ease with which it ds itself to an arrangement the perts call the "ideal combination." is combination uses hot water for tained heat, with warm air for id increase in temperature, whenr the weather suddenly becomes ch colder.

In addition, the experts point out circulating air—either hot or cold n a home makes the atmosphere re pleasant. They explain that ch comfort comes from yearund filtering of air, with humidifiion in the winter and dehumidifiion in the summer.

Versatile though the new Rheem t proves to be, its revolutionary ration is based entirely on the use single gas burner unit.

The jet operation through which cooling is accomplished, however, is not to be confused with jet engines for aircraft. Instead, the newly-developed Rheem air conditioning unit operates in this manner: A very small jet discharges refrigerant vapor inside of a specially contoured ejector tube. Discharge of the jet at supersonic speed accounts for much of its effectiveness.

First, there is a drop of several hundred degrees Fahrenheit in the vapor as it issues from the jet. Second, high speed of the discharge entrains, or draws off, vapor of the refrigerant which is maintained in an evaporator chamber to which the ejector tube is connected.

As evaporation takes place in the chamber, rapid cooling is the result. This lower temperature, in turn, cools the circulating water that is pumped through a coil of copper pipe in the evaporator chamber.

Low temperatures are maintained by relieving the ejector tube of pressures that would ordinarily be built up by the jet action. This pressure reduction is accomplished by condensing the vapor in a specially-designed unique air-film condenser

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NEW ISSUE

October 4, 1956

$25,000,000

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4¾% Debentures, Series G Due 1981

Dated October 1, 1956 Due October 1, 1981

Price 100.73% and Accrued Interest

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that has been in use by Rheem for the past three years.

When controls call on the Rheem unit for heating, however, the vapor condensing phase of the operation ceases. Then, jet discharge is diverted into the evaporator chamber, heating water that is being circulated in the copper coil, before it goes to the finned coil in the blower cabinet, or to the hot water heating system.

The system that serves to cool or to heat is a completely sealed operation. Some of the liquid is pumped into a refrigerant vapor generator to supply vapor pressure for the jet operation. Another portion of the liquid is fed into the evaporator chamber; and both operations are regulated by simplified automatic controls.

Other controls in the sealed system regulate the gas flame under the refrigerant vapor generator by positive, self-actuating automatic valves. Liquid used in the system is non-toxic, non-inflammable and non-corrosive.

No purchase prices have been announced for the new Rheem unit. Engineering and testing, however, have indicated that the new air conditioning and heating unit will be fully competitive, in both installation and operating costs, with any central air conditioning system being manufactured now for installation in homes.

With this new gas-fired unit, Rheem will be competing with its own Rheemaire, a revolutionary air conditioning system introduced in January of this year. Rheemaire, through its unique design gives as much as 95 per cent more cooling per unit of horsepower, with operating economies of as much as 45 per cent. Installations of Rheemaire are accompanied by a bonded guarantee, assuring performance at rated capacity.

Rheem engineering has revealed promises of no operating troubles and little or no service problem in connection with the new gas-operated unit. As a practical manufacturer of home equipment, however, Rheem has worked out a year-long field test program.

Thus, the new gas-fired air conditioning and heating unit will not be marketed before 1958. Instead, Rheem expects to keep in close touch with results of an exceptionally broad program of field test throughout 1957. Through the f test program, engineers will rep on such subjects as operating c ciency, operating costs, and a co prehensive scope of reactions fr home owners.

With field test units insta throughout the country, Rheem have reports of operating results i variety of homes, climates and of conditions that have a bearing heating and air conditioning p formance.

When this comprehensive field program by Rheem has proved new Rheem unit to be worthy American homes, distribution wil made through the regular Rhe channels of carefully selected wh salers and plumbing, heating and conditioning dealer-contractors.

Addition of gas air condition will bring considerable expansion the lines manufactured by Rheem addition to Rheemaire central air c ditioning, introduced early this ye Rheem manufactures furnaces boilers for homes, plumbing fixtu automatic storage water heat water softeners and clothes dryer

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vel Sells Compressor Division; Will Concentrate on Gas Products

TH the sale of its compressor ufacturing facilities to the Ben- Westinghouse Automotive Air ke Co., of Elyria, Ohio, Servel, will concentrate its production merchandising efforts on gas re- erators, "all-year" gas air condi- ers, and automatic ice-makers, ac- ing to an announcement by Dun- C. Menzies, Servel president.

he Bendix-Westinghouse pur- e included the facilities of Ser- commercial refrigeration di- on, 12¼ acres of land and two dings with 350,000 square feet of ufacturing space. The price was revealed.

commenting on the sale of the mercial refrigeration division, zies said:

The sale provides Servel with ad- nal working capital for its pro- n of greater concentration on the ufacture and merchandising of refrigerators, 'all-year' gas air ditioners and automatic ice- ers (for other manufacturers as as ourselves). These are the ian products which we believe contribute most to Servel's ress."

A Adds 162-Mile Link to rowave Radio System Used in -State Area by Colorado Interstate Gas Co.

MPLETION of a 162-mile rowave link in an RCA radio re- system used by the Colorado In- tate Gas Company, Colorado ings, for voice communication and rol services in a four-state area announced recently by Radio poration of America.

he extension link runs from es, Oklahoma, to Bivins, Texas, from Colorado Springs to Den- Colorado, according to Russell Dubois, Sales Manager, RCA mmunications Products, and is integrated with the original 483- system installed in 1954.

he integrated microwave net- k, which now totals 645 miles, s the Colorado Interstate Gas mpany at Colorado Springs with pipeline compressor stations and producing fields in Colorado, sas, Oklahoma, and Texas.

he microwave extension link, as as the original system, utilizes dard RCA CW-20A microwave equipment operating in the 2,000 megacycle band. In addition to voice communications, the integrated system provides VHF control circuits to provide communication among microwave stations and mobile units.

Mueller Appointment

THE appointment of W. R. Leopold, Jr. as engineering division manager of Mueller Company has been announced by Albert G. Webber, Jr., president and treasurer of the company. The position is a new one. Frank H. Mueller is vice president and director of engineering.

The author of a number of technical articles published in several leading national trade magazines, Mr. Leopold comes to Mueller Co. from the Lycoming Division of Avco Manufacturing Corp. in Stratford, Conn., where he was Group Project Engineer in charge of Research and Development.

Besides his position with Avco, he also has been Project Engineer for Wright Aeronautical, Woodridge, N. J.; Assistant Head of the Design and Development Division for the M. W. Kellogg Co., Jersey City, N. J.; head of a group working on mechanical and electro-mechanical devices for the Eclipse Pioneer Division of Bendix Aviation Corp., Teterboro, N. J.; and Senior Project Engineer for Barium Steel Corp., New Rochelle, N. Y.

Gas Heats More Homes Than Any Other Fuel

GAS is used to heat more homes in the United States than any other fuel, according to the American Gas Association. A.G.A. said that the latest statistics show that gas now provides

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October 9, 1956.

heat for 22.5 million American families in homes and apartments.

Of the total, 9.3 million families live in one, two, three and four family houses that are centrally heated by "residential" size automatic furnaces and boilers fired by gas. An additional 900 thousand families live in apartment houses with central gas heat. An added 12.3 million families depend upon gas space heaters and floor and wall furnaces for heat.

A.G.A. estimates indicate a new high was reached this year as gas central heating hit a mark of 10.2 million dwelling units, while oil followed with 10.1 million. During 1956, shipments of gas central heating units have exceeded oil burner shipments by a significant margin.

The statistics on gas include both homes on utility (city) gas mains and those using liquefied petroleum gas in bottles or tanks. Gas heated homes represent about 46 per cent of the more than 49 million occupied dwelling units in the U.S. as of mid-1956.

Actually, gas heated homes—for all types of heating systems—outnumber by more than 50 per cent those using its nearest rival—liquid fuels, which account for about 30 per cent of occupied dwelling units. Dwellings using coal, wood, electricity and other fuels number about 24 per cent of the national total.

The current gas househeating saturation of 46 per cent represents a sharp gain from the 1950 level of 29 per cent. And, the increased saturation reflects the continued high acceptance of gas heating in new homes, as well as the large number of conversions in older homes from other fuels which have been facilitated by increased supplies of natural gas from new pipeline construction and underground storage development.

Gas Industry Starting Greatest Expansion in History, Rockwell Says

THE American natural gas industry has embarked on a seven-billion dollar, four-year expansion program which inevitably will strengthen the nation's economy and standard of living, the president of the Gas Appliance Manufacturers Association recently.

W. F. Rockwell, Jr., (also Pr dent of Rockwell Manufactu Company), told the Pacific Coast Association at its 63rd annual con tion that the discovery and produc of natural gas have increased matically during the past decade. there is a tremendous private-en prise drive to distribute this preci fuel and its energy to every corne the country.

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erican homes. The Pacific coast set the pace for the gas industry." Mr. Rockwell pointed out that the pletion of a 1,487 mile pipeline m New Mexico to Oregon and shington this summer has brought ural gas to the last great popula- and industrial area of the U.S. t was without it—the Pacific thwest. Only Vermont, among all states, has no natural gas.

Arrival of natural gas will bring business and industry to the thwest—as it has to other regions nd provide a big new market for appliances, now the finest ever ered by manufacturers, Rockwell d.

Southern California manufacturers gas appliances and equipment, as l as eastern and mid-west manu- turers, already are feeling the sales act of the delivery of natural gas the Northwest.

There seems to be no let-up here the demand for gas. El Paso Nat- l Gas Company is engaged in an ansion program to deliver an ad- ional 650,000,000 cubic feet per to California utilities. The Fed- l Power Commission has already roved projects that will account 350,000,000 cubic feet, and appli- ions pending before the Commis- n call for another 300,000,000."

Gas Industry Sales and Revenues

vance. Total operating revenues he gas utility and pipeline industry ched a total of $5,750 million for twelve-month period ending June 1956, the American Gas Associa- n reports. This is a gain of $849 lion, or 17.3 per cent over the fig- for the comparable period one r earlier. Net operating revenues reased from $638 million to $761 lion in the same period, a gain of 3 per cent. Net income during the nulative period was $599 million, increase of 27.2 per cent over the 1 million for the similar period one r earlier.

Total taxes for the twelve-month iod ending June 30, 1956 were 5 million or 13.7 per cent of total rating revenues received by the utility industry. This figure of 5 million is 25.8 per cent greater n the total taxes of $624 million d by the industry for the like pe- l last year. Total taxes paid by the ustry were 31.1 per cent greater n the net income available to stock- lers and for future expansion.

Total operating revenue deductions 4,989 million represented 86.8 per of total operating revenues, slight- ower than in 1955 when operating revenue deductions of $4,263 million were 87.0 per cent of total operating revenues of $4,901 million. Total revenues of gas utilities from sales of gas to ultimate consumers (excluding sales to other utilities for resale) were $907 million in the second quarter of 1956, a gain of 19.1 per cent over revenues of $762 million in the comparable quarter of 1955. Revenues from sales to consumers for the twelve-months ended June 30, 1956 totaled $3,747 million, a rise of 15.5 per cent over $3,243 million in the previous twelve-month period.

Sales of gas during the second quarter of 1956 amounted to 17,152 million therms, an increase of 11.9 per cent over the 15,325 million therms sold in the same quarter of 1955. For the twelve-months ended June 30, 1956, sales of gas aggregated 70,507 million therms, an increase of 9.3 per cent over 64,482 million therms in the comparable period a year earlier.

On June 30, 1956, a total of 29.2 million customers, (excluding approximately 238,000 customers receiving liquefied petroleum gas through utility mains) were receiving utility gas, an increase of 4.4 per cent above the 28.0 million customers served a year earlier. Of this total, there were 27.0 million residential customers on June 30, 1956, a gain of 4.4 per cent when compared with 25.8 million residential users a year ago.

Revenues from the sale of natural gas to ultimate consumers for the second quarter of 1956 were $785 million, an increase of 20.7 per cent over the $650 million a year earlier. For the twelve-months ended June 30, 1956, natural gas revenues were $3,259 million, or 17.2 per cent above revenues of $2,782 million in the previous twelve-month period.

Sales of natural gas in the second quarter of 1956 were 16,203 million therms, an increase of 11.8 per cent over the 14,490 million therms sold during the same quarter of 1955. For the twelve-months ended June 30, 1956, natural gas sales totaled 66,764 million therms, a gain of 9.4 per cent over sales of 61,045 million therms sold one year earlier.

Customers served with natural gas on June 30, 1956, aggregated 24.3 million, and represented 83.5 per cent of total gas industry customers. A year earlier there were 22.5 million natural gas customers, representing 80.4 per cent of total customers of the industry.

Sales of manufactured and mixed gas increased 13.7 per cent during the second quarter of 1956 while revenues from these sales were up 8.5 per cent.

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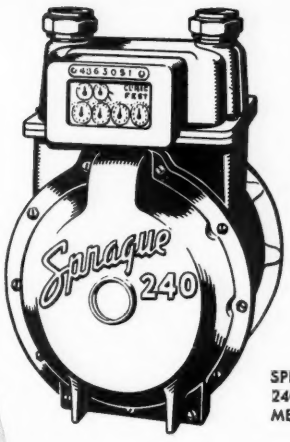

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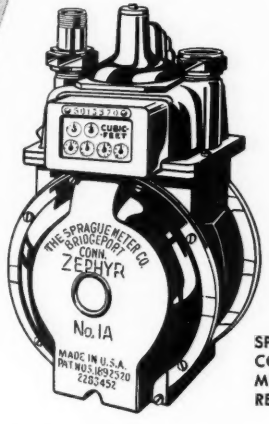

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